



PPT 8800 with Windows® Mobile 2003 Software for Pocket PCs



Product Reference Guide

***PPT 8800 with Windows[®] Mobile 2003 Software
for Pocket PCs
Product Reference Guide***

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Revision A

February 2005

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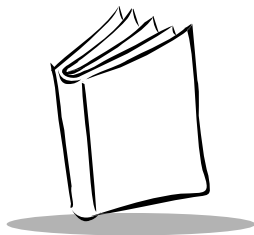
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Revision History

Changes to the original manual are listed below:

Change	Date	Description
-01		Initial release.
-02	10/2003	Add Bluetooth functionality. Add MSR operation instructions.
-03	1/2004	Add Mobile Companion V3.9.2 information.
-04	7/1/2004	Add PPT 8866 configuration.
-05	2/2005	Update battery charging temperature; add mobile computer and cradle connection cleaning procedures.



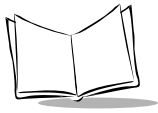
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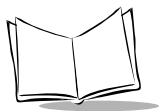
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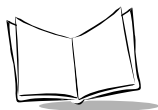
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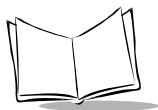
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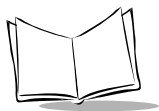
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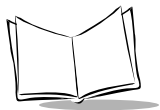
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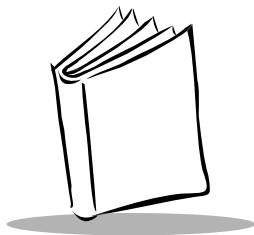
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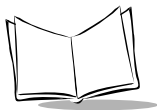
About This Guide

Introduction

The *PPT 8800 with Windows Mobile 2003 Software for Pocket PCs Product Reference Guide* provides information about the PPT 8800 Series terminal using the Microsoft Windows Mobile 2003 Operating System, and its accessories. The PPT 8800 Series includes the following variations of the terminal:

- | | |
|----------|--|
| PPT 8800 | Performs 1-dimensional scanning and batch communication. Memory configuration: 64 MB ROM/64 MB RAM. |
| PPT 8846 | Performs 1-dimensional scanning and uses the Symbol Spectrum24® radio to perform 11 MB local area network (LAN) wireless communication. Memory configuration: 64 MB ROM/64 MB RAM. |
| PPT 8860 | Performs 1-dimensional scanning with Bluetooth® wireless technology to perform personal area network (PAN) communication. Memory configuration: 64 MB ROM/64 MB RAM. |
| PPT 8866 | Performs 1-dimensional scanning with Symbol Spectrum24® radio to perform 11 MB local area network (LAN) wireless communication and Bluetooth® wireless technology to perform personal area network (PAN) communication. Memory configuration: 64 MB ROM/64 MB RAM. |

Note: *Some configurations support 128MB RAM.*

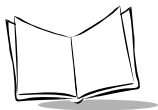


Chapter Descriptions

Topics covered in this guide are as follows:

- [Chapter 1, *Getting Started*](#) explains the physical buttons and controls on the terminal, how to install and charge the batteries, replace the handstrap, and start your terminal for the first time.
- [Chapter 2, *Operating the PPT 8800*](#) explains how to use your terminal, including instructions for powering on and resetting the terminal, using the stylus and a headset, entering information, and scanning.
- [Chapter 3, *Settings*](#) explains how to adjust settings on the terminal, and add and delete programs.
- [Chapter 4, *Communication*](#) explains how to use Microsoft® ActiveSync™ for communication between the terminal and host computer.
- [Chapter 5, *Spectrum24 Network Configuration \(V 3.9.1\)*](#) describes how to configure the Spectrum24 wireless connection using Mobile Companion version 3.9.1.
- [Chapter 6, *Spectrum24 Network Configuration \(V 3.9.2\)*](#) describes how to configure the Spectrum24 wireless connection using Mobile Companion version 3.9.2.
- [Chapter 7, *PPT 8860 Bluetooth*](#) describes how to use and configure the Bluetooth wireless connection on the PPT 8860.
- [Chapter 8, *PPT 8866 Bluetooth*](#) describes how to use and configure the Bluetooth wireless connection on the PPT 8866.
- [Chapter 9, *AirBEAM Smart*](#) explains how to set up your terminal to synchronize with a server using the AirBEAM Client and AirBEAM Staging applications.
- [Chapter 10, *Applications*](#) describes how to use the applications installed on the terminal.
- [Chapter 11, *Software Installation on Development PC*](#) provides instructions for installing the Software Developer's Kit on your host computer.
- [Chapter 12, *Configuring the Terminal*](#) describes how to install and use the Terminal Configuration Manager (TCM) and Initial Program Loader (IPL).
- [Chapter 13, *Maintenance and Troubleshooting*](#) provides information to help you take proper care of your terminal and solve problems that may come up.
- [Appendix A, *Block Recognizer Characters*](#) describes how to using the Block Recognizer to write characters.

- [Appendix B, Demo Program](#) provides an overview of the terminal demo program applications, such as scanning, setup, diagnostic utilities, and file management.
- [Appendix C, Technical Specifications](#) includes a table listing the technical specifications for the terminal.
- [Appendix D, Keypad Maps](#) includes tables listing key functionality for the keypad.
- [Appendix E, Bluetooth Regulatory Information](#) includes Bluetooth regulatory information.



Notational Conventions

This document uses these conventions:

- “terminal” or “PPT 8800” refers to any model of the terminal.
- “User” refers to anyone using an application on the terminal.
- “You” refers to the End User, System Administrator or Technical Support person using this manual as a reference to install, configure, operate, maintain and troubleshoot the terminal.
- *Italics* are used to highlight specific items in the general text, and to identify chapters and sections in this and related documents. It also identifies names of windows, menus, menu items, and fields within windows.
- **Bold** identifies buttons to be tapped or clicked.
- Bullets (•) indicate:
 - lists of alternatives or action items.
 - lists of required steps that are not necessarily sequential.
- Numbered lists indicate a set of sequential steps, i.e., those that describe step-by-step procedures.

Related Material

The following items provide more information about your terminal and accessories.

- *PPT 8800 with Windows Mobile 2003 Software for Pocket PCs Quick Reference Guide*, p/n 72-63153-xx
- *CRD8800-1000S Serial Cradle Quick Reference Guide*, p/n 72-58095-xx
- *CRD8800B-1000S Serial Cradle Quick Reference Guide*, p/n 72-64181-xx
- *CRD8800-4000S Serial Cradle Quick Reference Guide*, p/n 72-58096-xx
- *CRD8800-4000E Serial Cradle Quick Reference Guide*, p/n 72-59203-xx
- *MSR8800 Magnetic Stripe Reader Quick Reference Guide*, p/n 72-64824-xx
- *TRG8800 Trigger Handle Quick Reference Guide*, p/n 72-64623-xx
- *UBC 2000 Product Guide*, p/n 70-33188-xx
- *AirBEAM Package Builder Product Reference Guide*, p/n 72-55769-xx
- *Windows CE Help File for Symbol Terminals*, p/n 72E-38880-xx

- *Symbol Mobility Developer's Kit for .NET*,
<http://software.symbol.com/devzone>
- *Symbol Mobility Developer's Kit for Embedded Visual C 4.0*,
<http://software.symbol.com/devzone>
- *Device Configuration Package for PPT 8800*, available at
<http://software.symbol.com/devzone>
- *PPT 8860 Socket Bluetooth Software Developer's Kit*, available at
<http://software.symbol.com/devzone>
- ActiveSync software, available at <http://www.microsoft.com>.

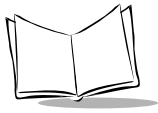
Service Information

If you have a problem with your equipment, contact the [Symbol Support Center](#) for your region. See [page xxii](#) for contact information. Before calling, have the model number, serial number, and several of your bar code symbols at hand.

Call the Support Center from a phone near the scanning equipment so that the service person can try to talk you through your problem. If the equipment is found to be working properly and the problem is symbol readability, the Support Center will request samples of your bar codes for analysis at our plant.

If your problem cannot be solved over the phone, you may need to return your equipment for servicing. If that is necessary, you will be given specific directions.

Note: *Symbol Technologies is not responsible for any damages incurred during shipment if the approved shipping container is not used. Shipping the units improperly can possibly void the warranty. If the original shipping container was not kept, contact Symbol to have another sent to you.*



Symbol Support Center

For service information, warranty information or technical assistance contact or call the Symbol Support Center in:

United States

Symbol Technologies, Inc.
One Symbol Plaza
Holtsville, New York 11742-1300
1-800-653-5350

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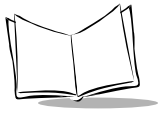
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For the latest version of this guide go to:<http://www.symbol.com/manuals>.

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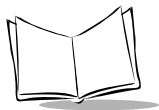


Chapter 1

Getting Started

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Introduction

This chapter explains the physical buttons and controls on your terminal, how to install and charge the batteries, replace the handstrap, and start your terminal for the first time.

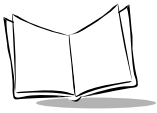
Unpacking the Terminal

Carefully remove all protective material from around the terminal and save the shipping container for later storage and shipping.

Verify that you received all equipment listed below:

- terminal
- lithium-ion battery
- handstrap, attached to the terminal
- case
- stylus, in the stylus silo
- *Quick Reference Guide*.

Inspect the equipment for damage. If you are missing any equipment or if you find any damaged equipment, contact the Symbol Technologies Support Center immediately. See [page xxii](#) for contact information.



Parts of the Terminal

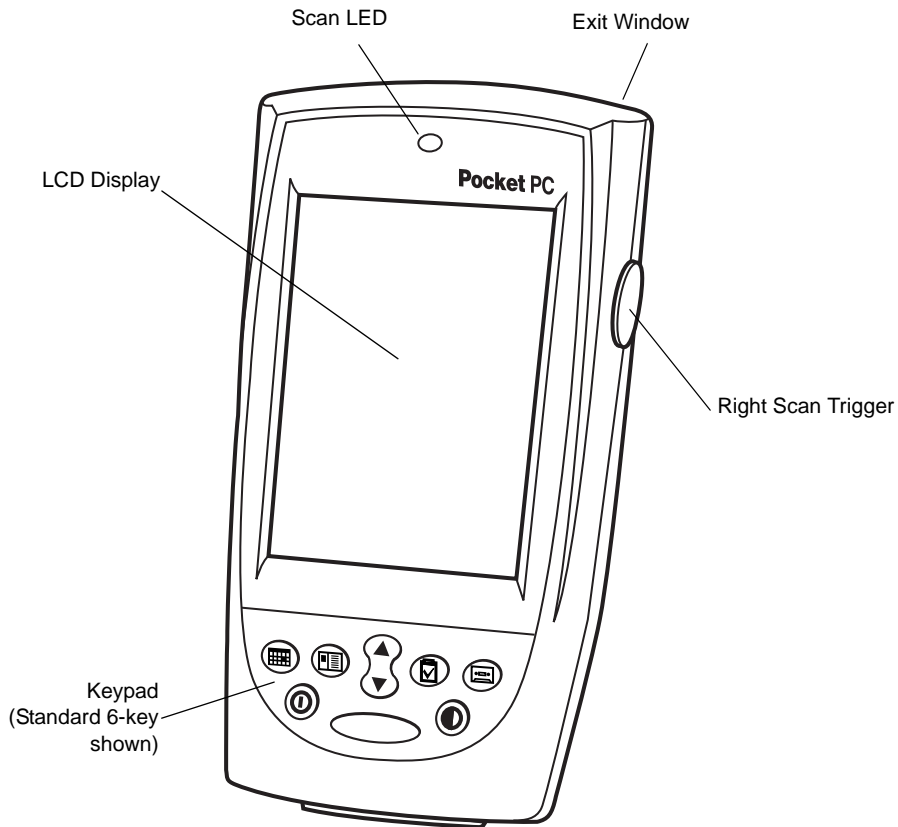


Figure 1-1. Front View

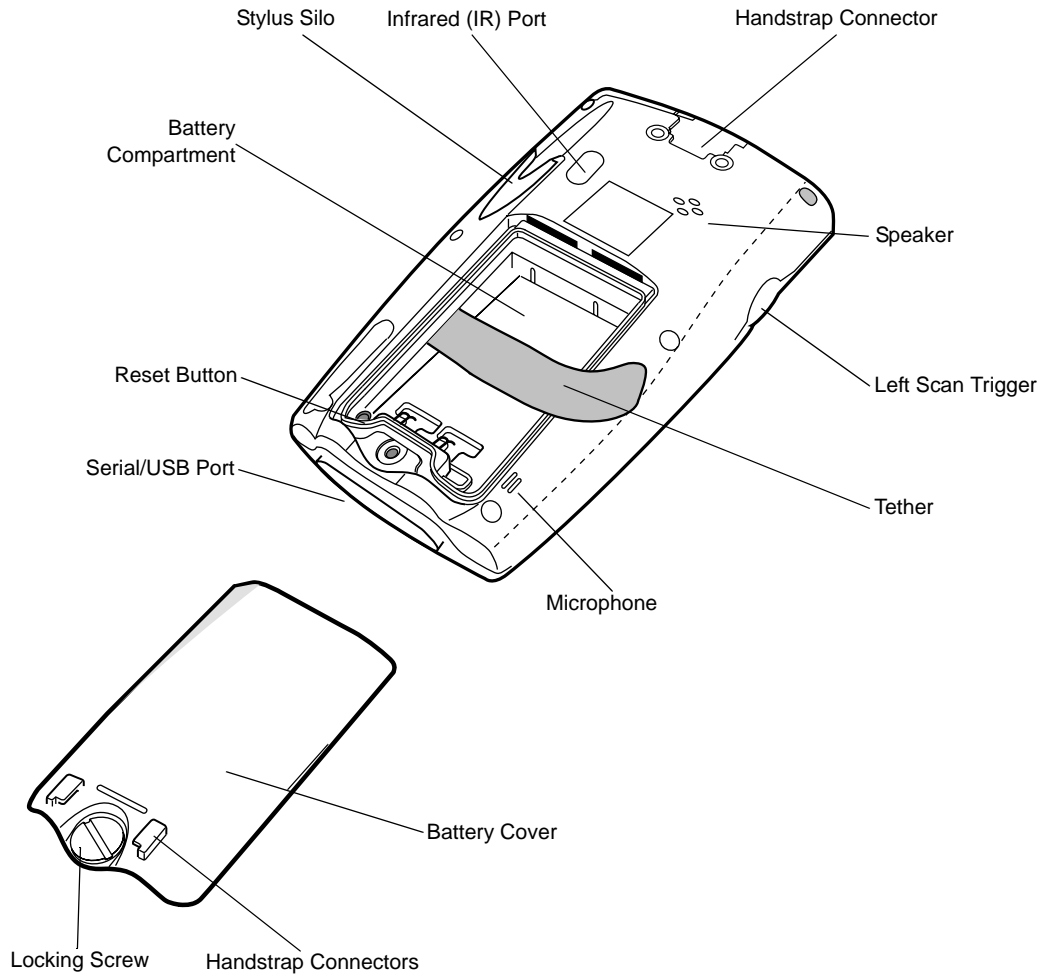
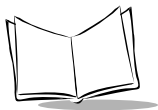


Figure 1-2. Back View



Accessories

Table 1-1 lists the accessories available for the PPT 8800 Series terminals.

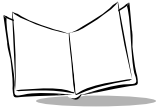
Note: For specific part numbers for PPT 8800 Series accessories, visit the PPT 8800 with Windows Mobile 2003 for Pocket PCs accessory web page: http://www.symbol.com/products/mobile_computers/ppt8800acc.html.

Table 1-1. Accessories

Accessory	Description
Spare standard lithium-ion battery	Spare standard 3.7V 1700 mAh lithium-ion battery.
Larger capacity lithium-ion battery kit.	Optional 3.7V 3400 mAh lithium-ion battery with replacement battery cover.
Stylus	Performs pen functions.
Universal Cable Cup	Connects to the terminal to an autocharge adapter and various cables.
Attachable Cables:	
DEX Cable	Connects the terminal to a vending machine.
Autocharger	Connects to the cigarette lighter in a vehicle to charge the terminal.
Printer Cables	Adds printing capabilities to the terminal.
USB Cable	Allows USB connection from the Cable Cup to a host computer
Attachable power supply and line cord	Allows charging of the terminal through the Universal Cable Cup.
Serial Charging Cable	Allows serial connection of the terminal to a host computer.
Single-Slot Serial Cradle	Charges the terminal and spare standard battery and synchronizes the terminal with a host computer through a serial connection.
Single-Slot Serial Cradle B with Larger Capacity Battery Support	Charges the terminal with standard or larger capacity battery and spare standard and larger capacity battery; and synchronizes the terminal with a host computer through a serial connection.

Table 1-1. Accessories

Accessory	Description
Four-Slot Serial Cradle	Charges up to four terminals with standard or larger capacity battery and synchronizes the terminals with a host computer through a serial connection.
Four-Slot Ethernet Cradle	Charges the terminals with standard or larger capacity battery and synchronizes the terminal with a host computer through an ethernet connection.
Holster(s)	Stores the terminal when not in use.
Trigger Handle	Provides gun form factor ergonomics for scan intensive applications.
Magnetic Stripe Reader (MSR)	Snap on to the terminal to add magstripe capabilities.
Vehicle Cradle	Powers the terminal and charges its standard or larger capacity battery, charges a standard or larger capacity spare battery and communicates with other devices such as printers.
Symbol Mobility Developer's Kit (SMDK) for Embedded Visual C 4.0	The Symbol Mobility Developer Kit (SMDK) for eVC4, provides all of the tools necessary for creating C and C++ native applications for Symbol terminals running Windows Mobile 2003 Software for Pocket PCs. These tools include class libraries, sample applications, and associated documentation.
Symbol Mobility Developer's Kit (SMDK) for .NET	The Symbol Mobility Developer Kit (SMDK) for .NET provides all of the tools necessary to develop C# and VB.NET managed applications for Symbol Mobile devices. These tools include class libraries, sample applications, and associated documentation. SMDK for .NET allows Microsoft® .NET Compact Framework developers to programmatically access the Symbol value-add features of the terminal.
Device Configuration Package for PPT 8800	Used to customize and deploy software for the terminal.



Getting Started

In order to start using the terminal for the first time:

- install the battery
- charge the battery and backup battery
- start the terminal
- configure the terminal.

Installing the Battery

Installing the Standard Battery

Before using your terminal, install a lithium-ion battery:

1. Turn the locking screw counterclockwise until the cover releases from the terminal.
2. Lift the battery door away from the terminal.

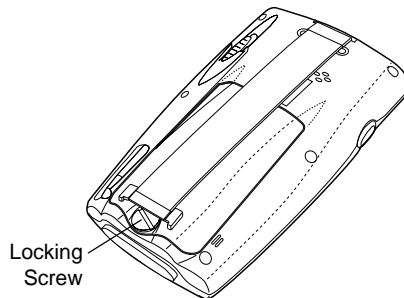


Figure 1-3. Locking Screw

3. Insert the lithium-ion battery in the battery compartment with the battery tether positioned as shown, ensuring the battery snaps into place.

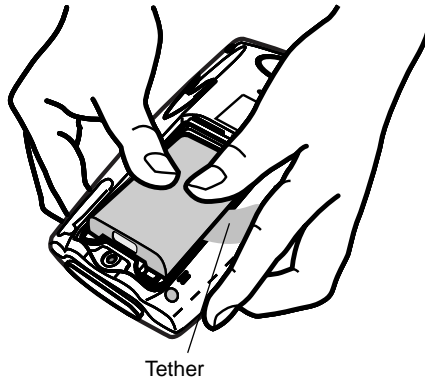


Figure 1-4. Inserting the Standard Battery

Note: *Ensure the battery is positioned correctly. The battery charging contacts should be placed on top of the charging contacts in the battery compartment.*

4. Replace the battery cover by inserting the top first, then pressing the bottom down firmly.

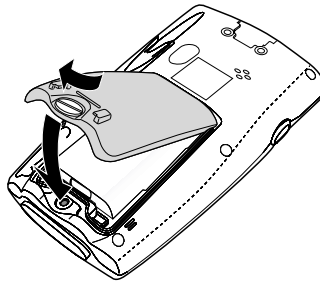
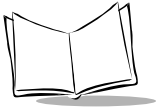


Figure 1-5. Closing the Back Cover

5. Turn the locking screw clockwise to secure the battery cover to the terminal.



Installing the Optional Larger Capacity Battery

To install the optional larger capacity battery:

1. Remove the bottom of the handstrap from the battery cover.
2. Unscrew the locking screw and remove the battery cover.

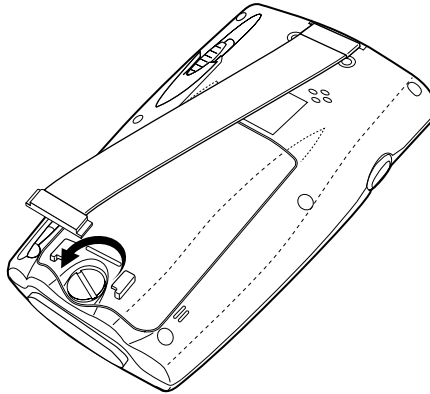


Figure 1-6. Unscrew Locking Screw

3. If a battery is installed, pull tether up to release battery.
4. Insert the larger capacity battery in the battery compartment with the battery tether positioned as shown, ensuring the battery snaps into place.

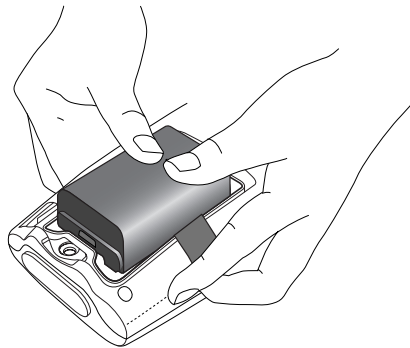


Figure 1-7. Installing the Larger Capacity Battery

5. Replace the new battery cover by inserting the top first, then pressing the bottom down firmly.

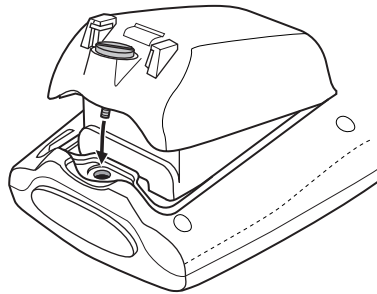


Figure 1-8. Secure New Battery Cover

6. Tighten the locking screw to secure the new battery cover to the terminal.
7. Re-attach the handstrap to the handstrap connector on the new battery cover.

Charging the Terminal Battery

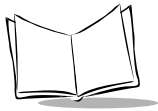
Charging the Main Battery and Memory Backup Battery

Note: To charge the battery for your mobile device, battery and charger temperatures must be between +32° F and +104° F (0° C and +40° C).

Before using your terminal for the first time, charge the standard lithium-ion battery in the terminal for approximately 2 1/2 hours, using a cradle or the serial charging cable. The optional larger capacity battery charges in approximately five hours.

Note: To ensure the quickest charging time, turn the terminal off while charging.

Your terminal is equipped with a memory backup battery which automatically charges from the fully-charged lithium-ion battery. This backup battery retains data in memory when the terminal's battery is removed. When you first use your terminal, it takes about 24 hours to charge the backup battery from the main battery.



Note: If you remove your lithium-ion battery before the backup battery is fully charged, data may be lost. For this reason, **DO NOT** remove the battery within the first 24 hours of use.

Using the Serial Charging Cable

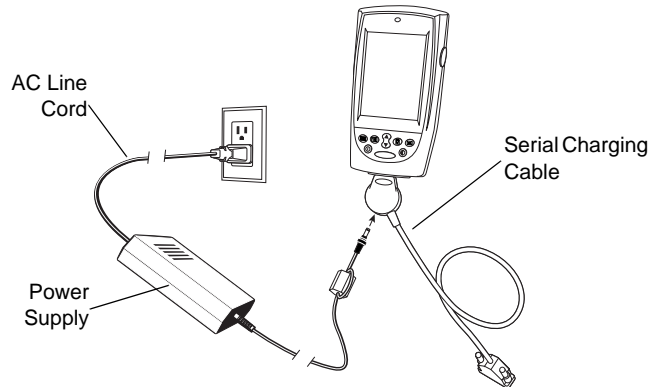


Figure 1-9. Power Set Up

The standard battery usually fully charges in approximately 2 1/2 hours and the optional larger capacity battery usually fully charges in approximately five hours.

Using the Single-Slot Serial Cradles

You can charge the battery in the terminal using either the CRD8800 or CRD8800B Single-Slot Serial Cradle. The CRD8800B cradle accepts a terminal with the larger capacity battery kit installed on the terminal. To charge the terminal's battery using the Single-Slot Serial cradle:

1. Connect the cradle to a power source.

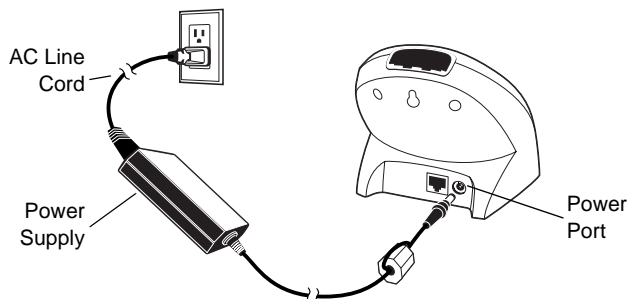


Figure 1-10. Connecting Power to the CRD8800 Cradle

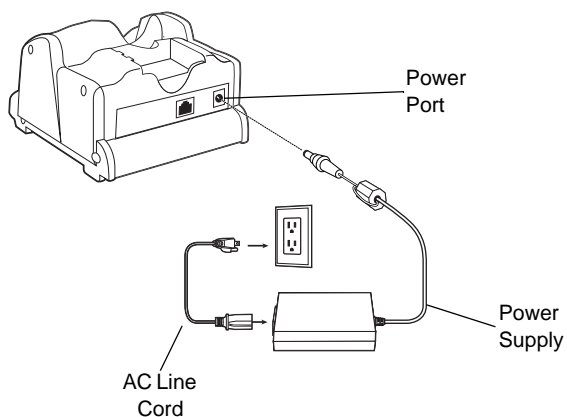
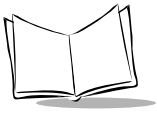
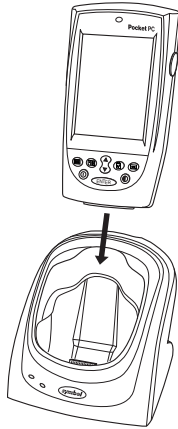


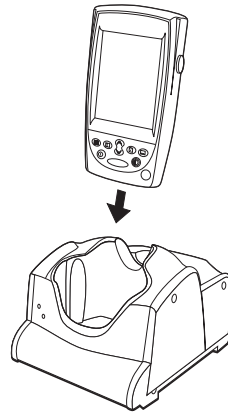
Figure 1-11. Connecting Power to the CRD8800B Cradle



2. Insert the terminal into the cradle. The terminal starts to charge automatically.



CRD8800



CRD8800B

Figure 1-12. Inserting the Terminal into the Single-Slot Serial Cradle

The standard battery usually fully charges in approximately 2 1/2 hours and the optional larger capacity battery usually fully charges in approximately five hours.

Using the Four-Slot Cradles

To charge the terminal's battery using the Four-Slot Charging Cradle or the Four-Slot Ethernet Cradle:

1. Connect the cradle to a power source.

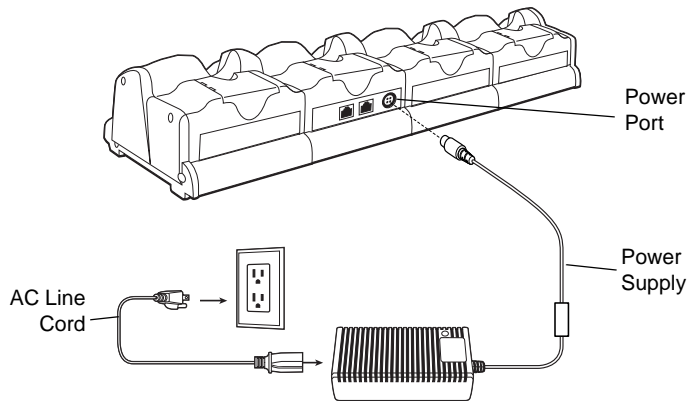


Figure 1-13. Connecting Power to the Four-Slot Cradle

2. Insert the terminal into the cradle. The terminal starts to charge automatically.

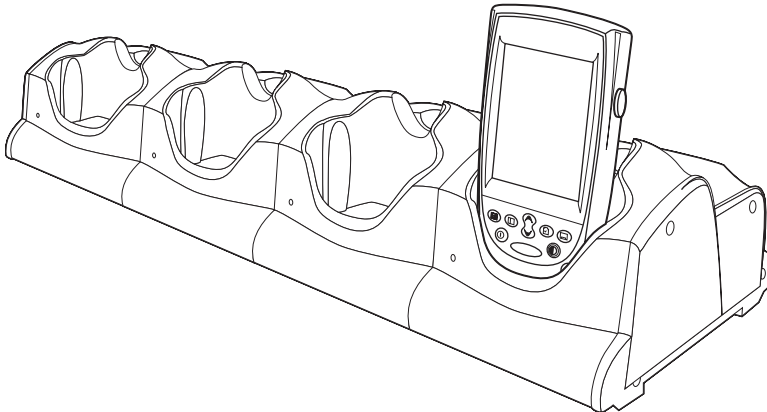
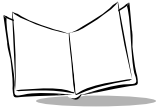


Figure 1-14. Inserting the Terminal into the Four-Slot Cradle

The standard battery usually fully charges in approximately 2 1/2 hours and the optional larger capacity battery usually fully charges in approximately five hours.



Using the Universal Cable Cup

To charge the terminal's battery using the Universal Cable Cup with the vehicle charging adapter or the wall outlet power supply and line cord:

1. Ensure the locking tabs are in the open position (up).
2. Insert the terminal into the cable cup.
3. Press down on the two locking tabs.
4. Pull on the cable cup to ensure that it is securely attached to the terminal.

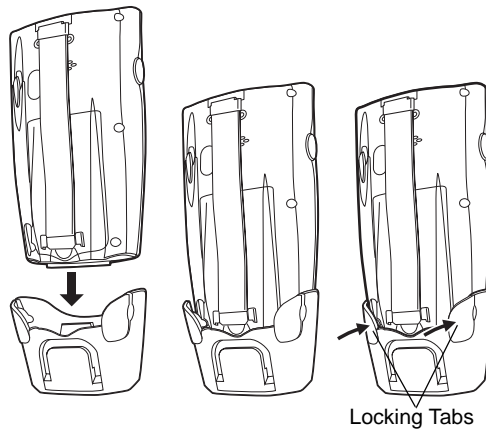


Figure 1-15. Attaching the Universal Cable Cup to the Terminal

5. Open the rubber cap covering the power port.

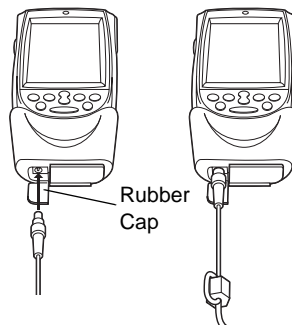


Figure 1-16. Connecting the Power Cable

6. Plug the power connector into the power port.

7. Wrap the cable around the cable support.

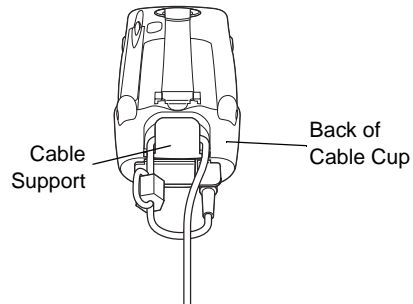


Figure 1-17. Securing the Cable

8. Connect the other end of the cable to a vehicle power adapter or appropriate power source.

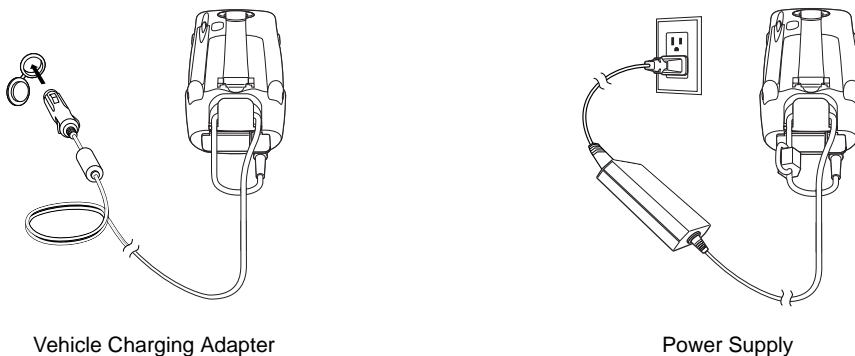
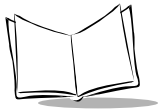


Figure 1-18. Connecting to Power Source

The standard battery usually fully charges in approximately 2 1/2 hours and the optional larger capacity battery usually fully charges in approximately five hours.



Charging Spare Batteries

A spare battery can be charged using the single-slot cradle(s).

Note: You can also use a UBC adapter to charge spare batteries. Refer to the UBC 2000 Universal Battery Charge Product Guide for more information.

Using the CRD8800 Single-Slot Cradle

The CRD8800 Single-Slot Serial Cradle charges only the standard battery.

1. Connect the cradle to a power source.

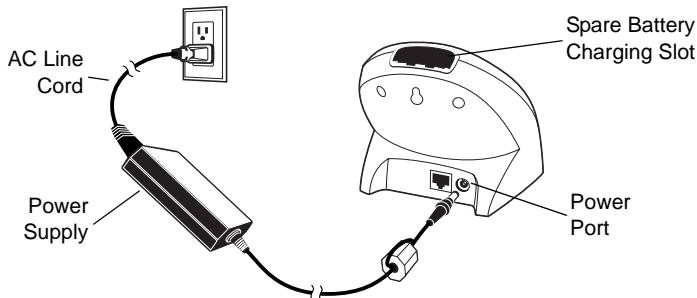


Figure 1-19. Connecting Power to the CRD8800 Cradle

2. Insert the battery into the spare battery charging slot on the back of the cradle. Position it with the charging contacts facing down (over charging pins) and gently press down on the battery to ensure proper contact.

The spare battery charging LED turns red to indicate that the spare battery is charging. The battery fully charges in approximately 2 1/2 hours. See [Charge LED Indicator](#) on page 1-21 for spare battery charging indications.

Using the CRD8800B Single-Slot Cradle

The CRD8800B Single-Slot Serial Cradle charges either the standard and larger capacity battery in the spare battery well.

1. Connect the cradle to a power source.

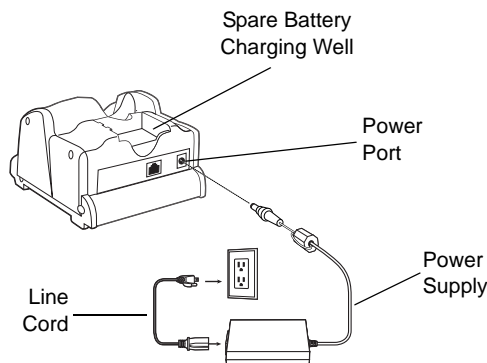
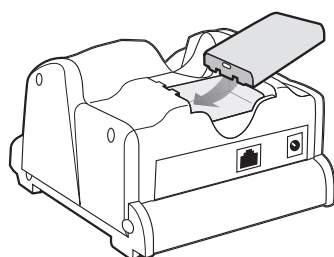
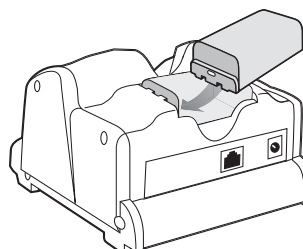


Figure 1-20. Connecting Power to the CRD8800B Cradle

2. Insert the battery into the spare battery charging well on the back of the cradle. Insert the contact end first and then press the back end into the well.



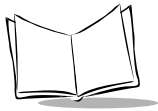
Standard Battery



Larger Capacity Battery

Figure 1-21. Inserting the Spare Battery into the Battery Well

The spare battery charging LED turns red to indicate that the spare battery is charging. The standard battery usually fully charges in approximately 2 1/2 hours and the optional larger



capacity battery usually fully charges in approximately five hours. See [Charge LED Indicator](#) on page 1-21 for spare battery charging indications.

Using the UBC Battery Adapter

1. Insert the appropriate battery adapter (up to four) into the UBC 2000 charger base.
2. Insert the battery into its appropriate adapter. Ensure the polarity markings on the battery (+, -) match with those of the adapter.

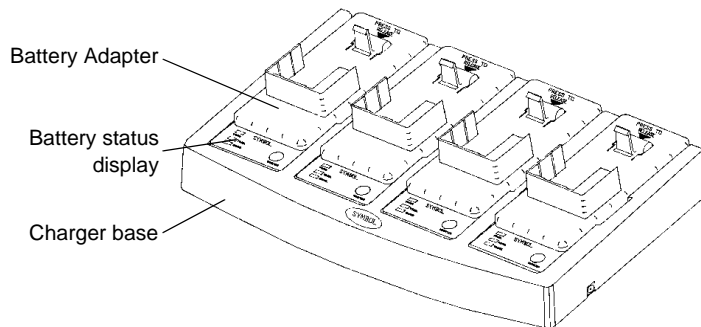


Figure 1-22. Inserting the Spare Battery

When the battery is inserted, the charging system begins the rapid charge cycle. When this cycle is completed, the "READY" indicator on the battery status display turns solid green, and the battery is charged to approximately 95% of its rated capacity. To attain 100% of its capacity the battery should remain in the charger for 3 hours. A charged battery may be stored in the charger indefinitely. Upon completion of the charging cycle, the charger switches to "Maintenance Mode" where it maintains the battery at 100% of its rated capacity.

Caution

Do not charge a battery that is below 0° C (32° F) or above 45° C (113° F).
Allow the battery to warm up to room temperature before charging.

Charge LED Indicator

Table 1-2. Charge LED Indicator

LED	Indication
Spare Battery Charging (Cradle LED)	
Off	No spare battery in slot; spare battery not placed correctly; cradle is not powered.
Solid red	Spare battery is charging.
Flashing red	Error in charging; check placement of spare battery.
Solid green	Charging is complete.

Starting the Terminal

Press the Power button to turn on the terminal. If the terminal does not power on, perform a hard reset. See [Resetting the Terminal](#) on page 2-36.

When turning the terminal on for the first time, the terminal initializes its Flash File system, the Symbol splash screen displays for about a minute followed by the calibration window. Note that these windows also appear every time you perform a hard reset.

Calibrating the Screen

To calibrate the screen so the cursor on the touch screen aligns with the tip of your stylus:

1. Remove the stylus from its storage silo on the back of the terminal.



2. Carefully press and briefly hold the tip of stylus on the center of each target that appears on the screen.

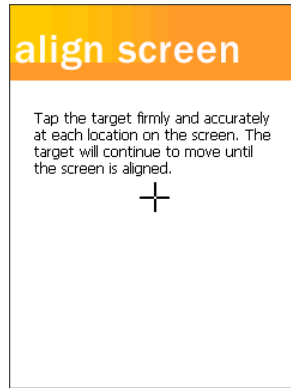


Figure 1-23. Align Screen

Note: To re-calibrate the screen at anytime, press **FUNC + 6** on a 15-key terminal or press **Function + F4** on the standard 6-key terminal to launch the calibration screen application.

3. Follow the directions on the screen which lead you through a simple exercise illustrating how to use the stylus and pop-up menus.

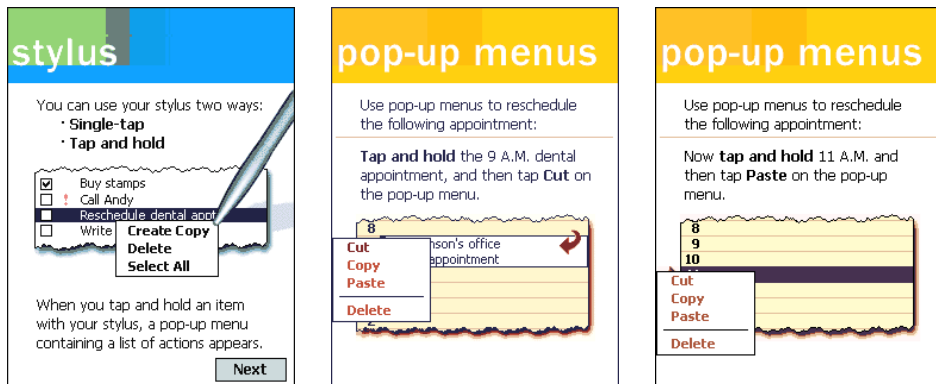


Figure 1-24. Using Pop-up Menus

4. Use the drop-down list to set your time zone, and tap **Next**.

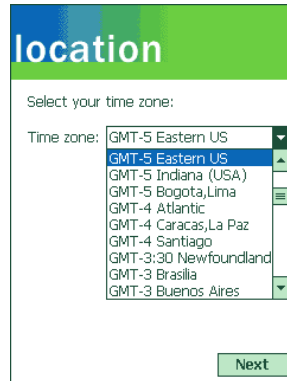


Figure 1-25. Setting Time Zone

Note: *These initial setup screens appear each time you perform a hard reset.*

Setting Time and Date

The Time and Date window does not appear after setting the time zone. Tap **Start - Settings - System** tab - **Clock** icon to use the clock control panel applet to set the time and date after a hard reset.

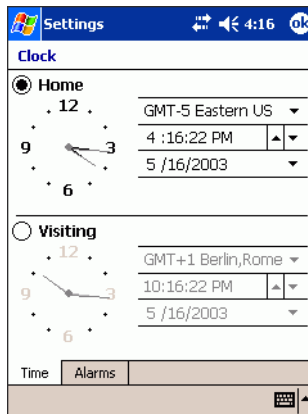


Figure 1-26. Setting Time and Date



Checking Battery Status

To check whether the main battery or backup battery in the terminal is charged, tap *Start - Settings - System tab - Power* icon to display the *Battery Status* window.

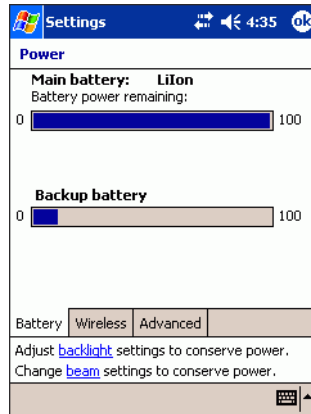


Figure 1-27. Battery Status Screen

To save battery power, set your terminal to turn off after a specified number of minutes. See [Power](#) on page 3-43 to set power management options.

Replacing the Handstrap

The terminal has a factory-installed handstrap which increases comfort when holding the terminal for extended periods of time. The handstrap may be removed or replaced, if damaged.

To replace the handstrap:

1. Unhook the bottom of the handstrap from the handstrap connector on the battery cover.
2. Unhook the top of the handstrap from the handstrap connector on the back of the terminal.

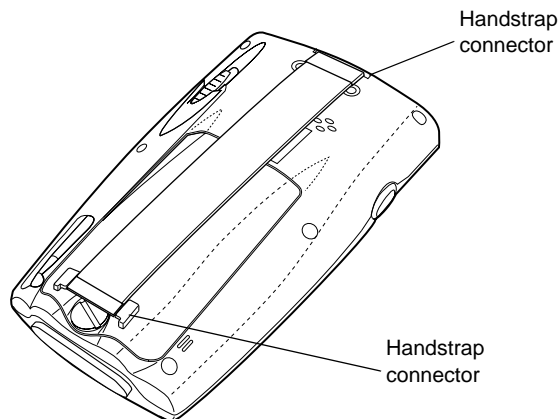
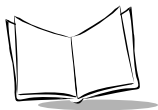
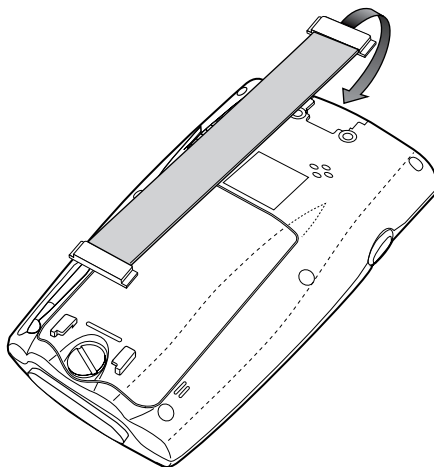


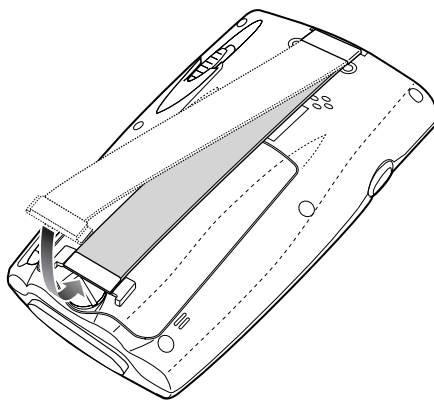
Figure 1-28. Handstrap Replacement



3. Slide the flat metal piece of the new handstrap into the handstrap connector on the back of the terminal.



4. Slide the flat metal piece on the other end of the handstrap into the handstrap connector on the battery cover.



Magnetic Strip Reader

The MSR8800 Magnetic Stripe Reader is an essential accessory for the PPT 8800 Series terminal, allowing easy data capture with the swipe of a magnetic stripe card. The magnetic stripe reader snaps easily on to the bottom of the terminal and can be easily removed when not in use.

Installing the MSR

1. Ensure that locking tabs are in the open position (up).
2. Insert the terminal into the MSR.
3. Press down on the two locking tabs.
4. Pull on the MSR to ensure that it is securely seated on the terminal.

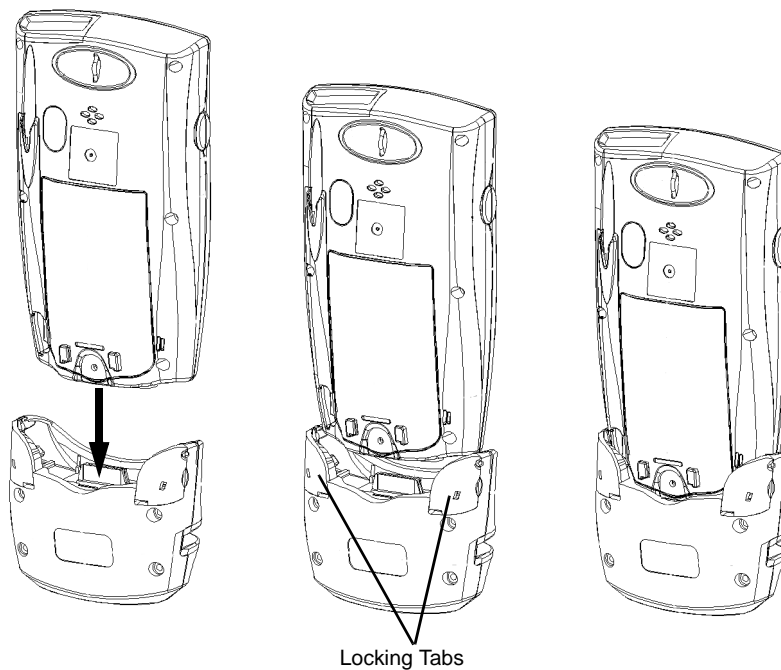


Figure 1-29. MSR Installation



Removing the MSR

1. Lift the two locking tabs.
2. Pull the MSR8800 from the terminal.

Using the MSR

In order to use the MSR, your terminal must have an application installed which accepts magnetic stripe data. Your terminal has a terminal emulator installed which can be used to access data acquired by the MSR.

To use the terminal emulator you must create a new session or connect using an existing one. Depending on your terminal's operating system, use the appropriate set of steps below to create a new terminal session.

1. Select *Start - Settings* and tap the *Connections* tab.
2. Tap the *Connections* icon.
3. Select *Add a new modem connection*.
4. In the *Session Name* box, enter a name for the session.
5. In the *Select a Modem* list, select the name of your modem or *Hayes Compatible on Com1:*.
6. Tap **Next** and enter any number. It does not need to be a valid number. Tap **Next**.
7. Tap **Advanced**.
8. From the *Baud Rate:* drop-down list, select *9600*.
9. Tap the *Port Settings* tab and check all three boxes.
10. Tap **Ok** and then **Finish**. Hide the soft keyboard.
11. Select *Manage existing connections*.
12. Tap and hold on the new connection name.
13. Select *Connect* from the pop-up menu.
14. In the *Network Log On* window, tap **Ok**.
15. In the *Connecting* dialog box, tap **Hide**.
16. Hide the soft keyboard. The *Manual Dial Terminal* window is now visible.

Swipe the magnetic stripe card through the reader, ensuring the magnetic stripe on the card is positioned as shown. Data encoded on the magnetic stripe displays in the terminal window on the terminal.

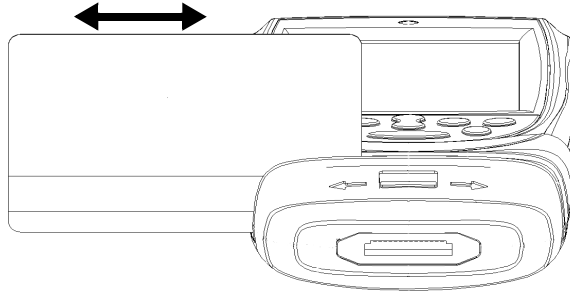
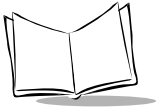


Figure 1-30. Swiping a Card

Note: *The card may be swiped in either direction, from left to right, or from right to left. For best results, gently press down on the card while swiping to ensure contact with the bottom of the reader.*

If the terminal is left idle long enough to go into the Suspend-Resume state, or the power is turned off and then on again, it may be necessary to close and restart the terminal program to reinitialize the serial port.

To disconnect the terminal emulation, select *File - Cancel*. The session you created appears as an icon in the Terminal folder. You can create a desktop shortcut for the session, and connect by double-tapping it.



Charging the Terminal's Battery

The terminal's battery can be charged while the MSR is installed on the bottom of the terminal, using the Serial Charging Cable (p/n 25-38383-01) and power supply (p/n 50-14000-107). The standard battery charges in approximately 2 1/2 hours.

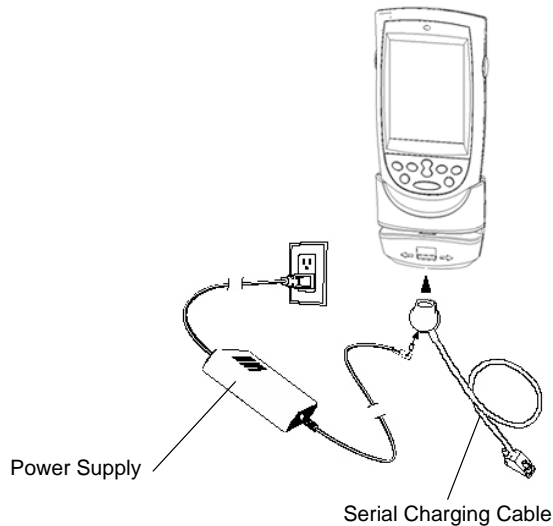
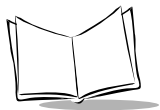


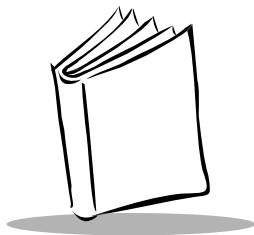
Figure 1-31. Charging the Terminal Using the MSR

Configuring the Terminal

Refer to the following chapters to configure the terminal:

- For customizing the settings on your terminal, see [Chapter 3, *Settings*](#).
- To set up ActiveSync to synchronize your terminal with your host computer, see [Chapter 4, *Communication*](#).
- To configure your terminal for Spectrum24, see [Chapter 5, *Spectrum24 Network Configuration \(V 3.9.1\)*](#) or [Chapter 6, *Spectrum24 Network Configuration \(V 3.9.2\)*](#).
- To configure your terminal for Bluetooth, see [Chapter 7, *PPT 8860 Bluetooth*](#) or [Chapter 8, *PPT 8866 Bluetooth*](#).
- To set up AirBEAM to synchronize your terminal with your host server, see [Chapter 9, *AirBEAM Smart*](#).
- To install development software on your development PC, see [Chapter 11, *Software Installation on Development PC*](#).
- To configure your terminal using the Terminal Configuration Manager, see [Chapter 12, *Configuring the Terminal*](#).



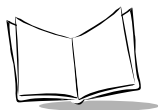


Chapter 2

Operating the PPT 8800

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Introduction

This chapter provides basic instructions for using and navigating the terminal.

Using the Power Button






Press the  button to turn the terminal on and off. See [Starting the Terminal](#) on page 1-21.

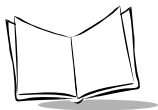
Adjusting the Backlight

Standard 6-Key Configuration

Use the key combinations listed in [Table 2-1](#) to control the display and keypad backlight.

Table 2-1. Standard 6-Key Keypad Backlight Controls





Keys	Description
Press and hold 	Turns the display backlight and keypad backlight on and off. When both backlights are off, the backlights turn on in the following order when the button is held: The display backlight turns on first, continue to hold and the keypad backlight turns on. When either backlight is on, the backlights turn off when the button is pressed and held.
Press  + 	Decrease display backlight (decrease brightness).
Press  + 	Increase display backlight (increase brightness).



15-Key Configuration

Use the key combinations listed in [Table 2-2](#) to control the display and keypad backlight.

Table 2-2. 15-Key Keypad Backlight Controls

Keys	Description
Press and hold ①	Turns the display backlight and keypad backlight on and off. When both backlights are off, the backlights turn on in the following order when the button is held: The display backlight turns on first, continue to hold and the keypad backlight turns on. When either backlight is on, the backlights turn off when the button is pressed and held.
Press  + 	Decrease display backlight (decrease brightness).
Press  + 	Increase display backlight (increase brightness).

Using the Stylus

Your terminal has a stylus for selecting items and entering information. The stylus functions as a mouse.

- **Tap:** Touch the screen once with the stylus to press option buttons and open menu items.
- **Tap and Hold:** Tap and hold the stylus on an item to see a list of actions available for that item. On the pop-up menu that appears, tap the action you want to perform.
- **Drag:** Hold the stylus on the screen and drag across the screen to select text and images. Drag in a list to select multiple items.

Using a Headset

You can use a stereo headset to listen to audio playback. To use a headset, plug the headset jack into the audio connector on the top of the terminal. Ensure that the terminal's volume is set appropriately before putting the headset on. When a headset is plugged into the jack, the speaker is muted.

Note: *The audio connector does not support headsets with a microphone.*

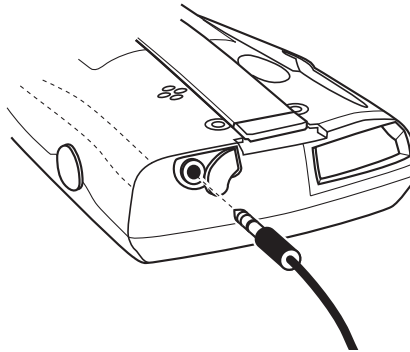
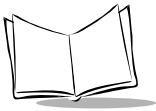


Figure 2-1. Using a Headset

Using the Keypad

The terminal has two backlit keypad configurations: a standard 6-key configuration and a 15-key configuration.



Standard 6-Key Configuration

The standard 6-key keypad contains a power button, application keys, scroll keys, an Enter key and a function key. See [Table 2-3](#) for descriptions of the keypad buttons and keys.

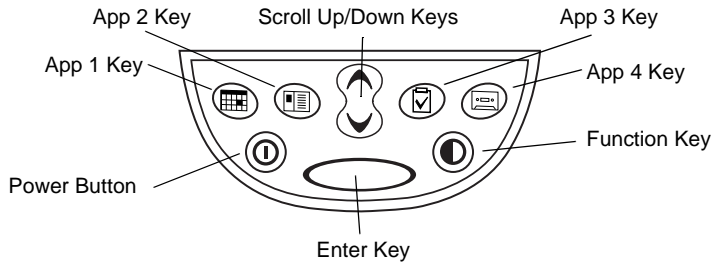


Figure 2-2. Standard 6-Key Configuration

Table 2-3. 6-Key Keypad Actions

Key	Action
App 1 - App 4 	These keys can be assigned to an application. See Buttons on page 3-8 for default settings.
Scroll Up 	Moves up from one item to another. Increases the brightness of the backlight when simultaneously pressed with the Function key.
Scroll Down 	Moves down from one item to another. Decreases the brightness of the backlight when simultaneously pressed with the Function key.
Function 	Executes an operation when it's pressed with another key (keys) simultaneously, such as one of the Scroll keys.
Power 	Powers the terminal on and off and turns the backlight on and off when held.
Enter 	Executes a selected item or function.

15-Key Configuration

The 15-key keypad uses an alphanumeric keypad that produces the 26-character alphabet (A-Z, both lowercase and uppercase), numbers (0-9), function keys (F1 - F10) and assorted characters. The keypad is color-coded to indicate which modifier key (ALPHA or FUNC) to press to produce a particular character or action. The keypad default is numeric, producing numbers.

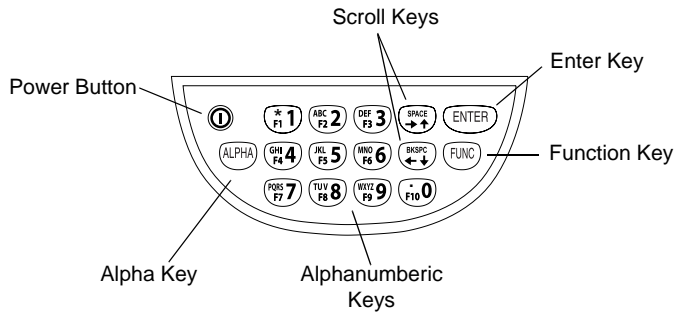






Figure 2-3. 15-Key Configuration

Table 2-4. 15-Key Keypad Actions

Key	Action
Alpha 	Press the ALPHA key to cycle through the input modes (Alpha Lowercase, Alpha Uppercase, Numeric). The default is numeric mode. In both alpha modes, pressing a key produces the yellow letter on that key; in numeric mode, pressing a key produces the white number on that key. See Table 2-5 .
Scroll Up 	In the numeric mode, moves the cursor up on the window. In the function mode, moves the cursor to the right. In the alpha mode, is a space key.
Scroll Down 	In the numeric mode, moves the cursor down on the screen. In the function mode, moves the cursor to the left. In the alpha mode, is a backspace key.
Function 	Executes an operation when pressed with another key or keys simultaneously, such as one of the Scroll keys. Refer to Table 2-5 . Executes the same function in both the alpha and numeric modes.

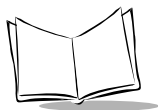


Table 2-4. 15-Key Keypad Actions (Continued)



Key	Action
Power 	Powers the terminal on and off and turns the backlight on and off when held.
Enter 	Executes a selected item or function.

Table 2-5. 15-Key Keypad Input Modes

Key	Numeric Mode		Alpha Lowercase Mode				Alpha Uppercase Mode			
		FUNC+ Key	1st Press	2nd Press	3rd Press	4th Press	1st Press	2nd Press	3rd Press	4th Press
1	1	F1	@	-	_	/	:	?	!	,
2	2	F2	a	b	c		A	B	C	
3	3	F3	d	e	f		D	E	F	
4	4	F4	g	h	i		G	H	I	
5	5	F5	j	k	l		J	K	L	
6	6	F6	m	n	o		M	N	O	
7	7	F7	p	q	r	s	P	Q	R	S
8	8	F8	t	u	v		T	U	V	
9	9	F9	w	x	y	z	W	X	Y	Z
0	0	F10								
UP	UP	RIGHT	SPACE				SPACE			
DOWN	DOWN	LEFT	BK SPC				BK SPC			
ENTER	ACTION		ACTION				ACTION			
Note: The key functions can be changed by an application. The keypad may not function exactly as described.										

Note: For detailed keypad configurations including ASCII values and VK codes, see [Appendix D, Keypad Maps](#).

For information about using the soft keyboard from the input panel, see to [Entering Information](#) on page 2-23.

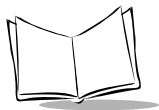
Key Mode Icon

When you press the ALPHA or FUNC key, the Key Mode icon appears in the command bar indicating the key state. The icon disappears when in numeric mode.



Figure 2-4. Alpha Key Icon

When a program, such as Pocket Word, is open the icon appears in the command bar. You can move the icon anywhere on the screen by dragging it to a new location. Double-tap the icon to return it to its default location in the command bar. To hide the icon, tap the icon and then tap *Hide*. To un-hide the icon, tap *Start - Today*. Tap the icon and then tap *Show*.



In either alpha mode, when a key is pressed a list of characters assigned to that key appears in the command bar with the selected key highlighted. Repeated pressing of the key highlights the next key in the display.

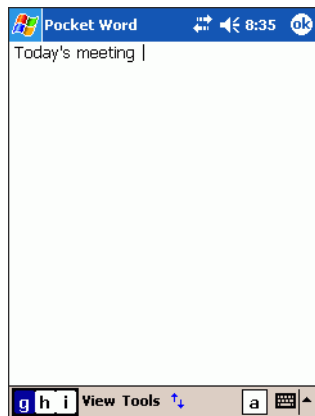


Figure 2-5. Key Icon Selection

Today Screen

When you turn on your terminal for the first time each day (or after 4 hours of inactivity), the *Today* screen appears. You can also display it by tapping *Start - Today*. On the *Today* screen, you can see important information for the day.

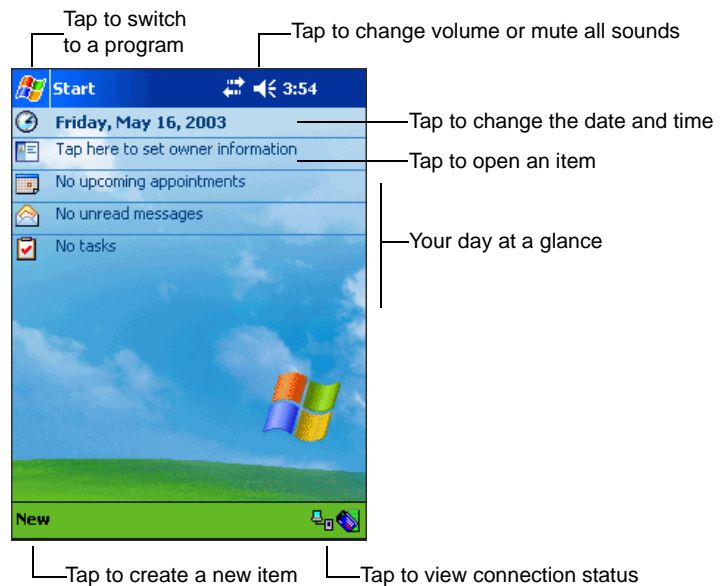


Figure 2-6. Today Screen

Note: *The Today screen may vary depending on your terminal configuration.*

The *Today* screen is customizable. Tap *Start - Settings - Today* icon. Use the *Appearance* tab to customize the background and the *Items* tab to change the list and order of items that appear on the screen.



Using the Navigation Bar and Command Bar

The navigation bar at the top of the screen displays the active program, various status icons (see [Table 2-6](#)) and current time. It also allows you to select programs and close screens.

Use the command bar (task tray) at the bottom of the screen to perform tasks in programs. The command bar includes menu names, buttons, and the input panel button. It can also include icons of active radios or programs, where applicable (see [Table 2-6 on page 2-13](#)).

To create a new item in the current program, tap *New*. To see the name of a button, hold the stylus on the button. Drag the stylus off the button so the command is not carried out.

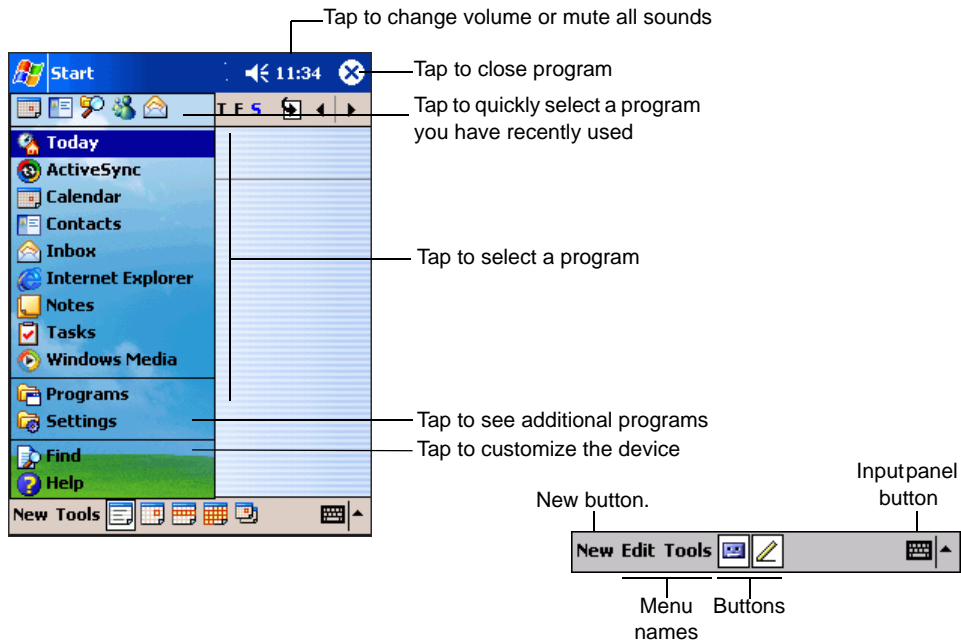















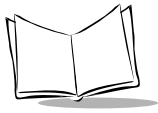
Figure 2-7. Screen Navigation

Status Icons

You may see the status icons listed in [Table 2-6](#) on the navigation bar located at the top of the screen.

Table 2-6. Status Icons




Icon	Function	Description
	Speaker	Turns all sounds on and off.
	Battery	Backup battery is very low.
		Main battery is charging.*
		Main battery is low.
		Main battery is very low.
		Main battery is full.*
	Connectivity	Connection is active.
		Synchronization is occurring.
		IrDA connection is occurring.
	Instant Message	Notification that one or more instant messages were received.
	E-Mail	Notification that one or more e-mail messages were received.
	Time and Next Appointment	Displays current time in analog or digital format.
	Multiple Notifications	There are more notification icons than can be displayed. Tap to display remaining icons.
* Only appears in the <i>Time and Next Appointment</i> dialog box.		



Task Tray Icons

You may see the task tray icons listed in [Table 2-7](#) on the command bar located at the bottom of the screen.

Table 2-7. Task Tray Icons

Icon	Description
	The <i>Mobile Companion</i> icon appears in the task tray and indicates mobile computer signal strength. See Chapter 5, <i>Spectrum24 Network Configuration (V 3.9.1)</i> or Chapter 6, <i>Spectrum24 Network Configuration (V 3.9.2)</i> for more information.
	The <i>Bluetooth</i> icon appears in the task tray and indicates that the Bluetooth radio is on. The Bluetooth icon disappears when the radio is off. The Bluetooth icon is for display purposes only. See Chapter 7, <i>PPT 8860 Bluetooth</i> or Chapter 8, <i>PPT 8866 Bluetooth</i> for more information.
	The <i>ActiveSync</i> icon appears in the task tray and indicates an active connection between the mobile computer and the development PC.

Speaker Icon

You can adjust the system volume using the *Speaker* icon in the Navigation bar.

1. Tap the Speaker icon. The *Volume* dialog box appears.

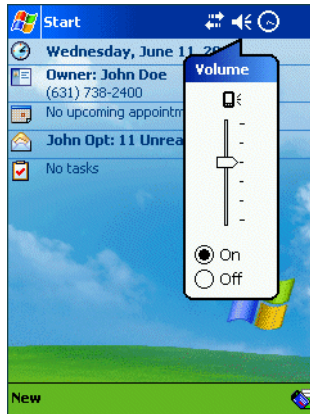


Figure 2-8. Volume Dialog Box

2. Tap and move the slide bar to adjust the volume.
3. Select the *On* or *Off* radio button to turn the volume on or off.

Note: Use can also adjust the system volume using the *Sounds & Notifications* window. See [Sounds & Notifications](#) on page 3-22 for more information.



Battery Icon

Battery icons display on the *Navigation Bar* when the main battery or backup battery power falls below a predetermined level. A *Battery* dialog box also appears indicating the status of the main or backup battery.

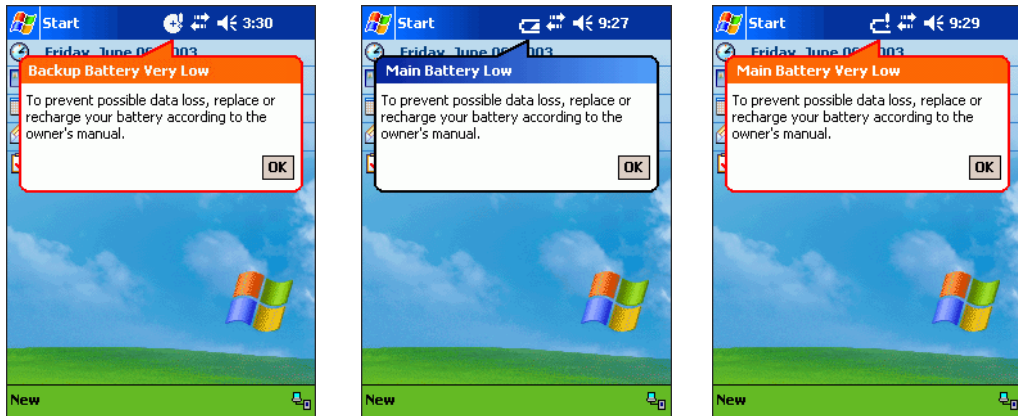


Figure 2-9. Battery Status Dialog Box

Note: You can also view the battery status using the *Power* window. See [Power](#) on page 3-43 for more information.

Connectivity Icon

The *Connectivity* icon indicates the communication status of the terminal when it's connecting to the internet or host computer.

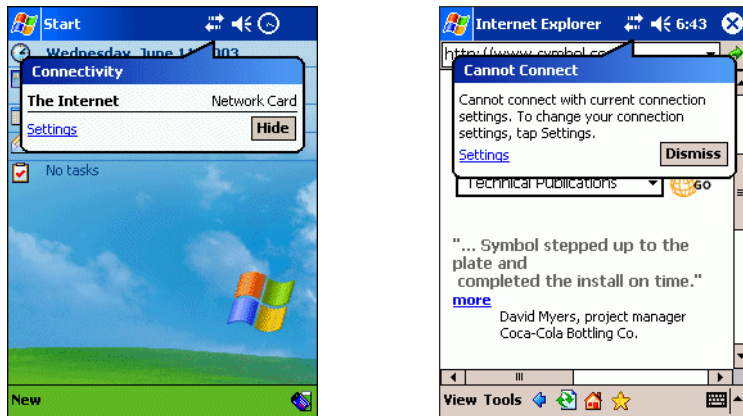
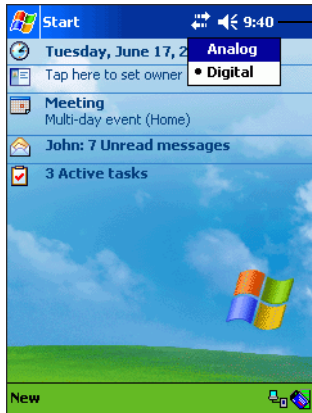


Figure 2-10. Connectivity Dialog Box

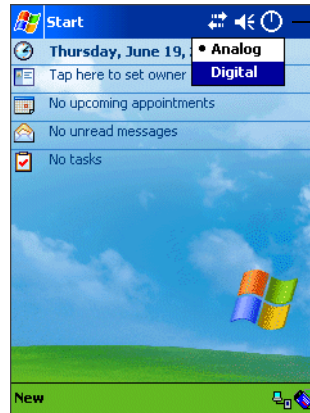


Time Icon

The *Time* icon displays the current time in a digital or analog format. To change the time format, tap and hold the *Time* icon until a menu appears. Select the format you want.



Digital Clock



Analog Clock

Figure 2-11. Time Icon Format Menu

To display current date, time and appointments:

1. Tap the *Time* icon to display the *Time and Next Appointment* dialog box.

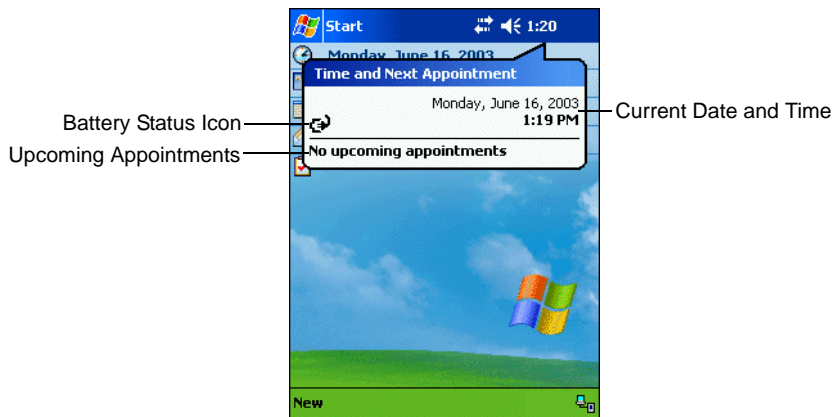


Figure 2-12. Time and Next Appointment Dialog Box

2. The dialog box displays the current date and time, the battery status and any upcoming appointments in the *Calendar*.

Instant Message Icon

The *Instant Message* icon notifies you when *MSN Messenger* has received a new incoming message. See [MSN® Messenger](#) on page 10-26 for more information.

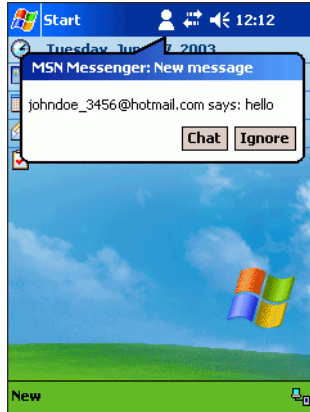


Figure 2-13. MSN Messenger Dialog Box



E-Mail Icon

The *E-Mail* icon notifies you when you have received incoming e-mails. See [Inbox](#) on page 10-14 for more information.

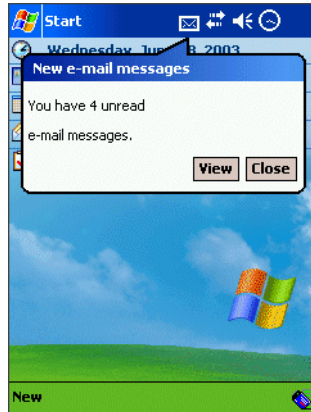


Figure 2-14. New E-mail Messages Dialog Box

Multiple Notification Icon

The *Multiple Notification* icon appears when two or more message notifications occur. Tap the icon to display the multiple notification icons.

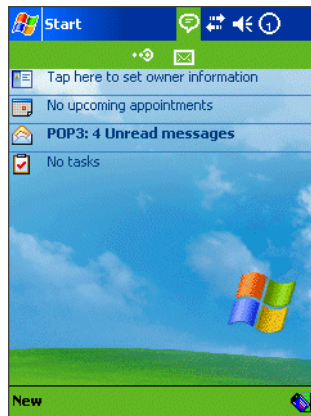


Figure 2-15. Multiple Notifications Icon

Selecting Programs

To select a program, tap *Start - Programs*, then the program name. (To select which programs appear on the *Program* menu, see [Chapter 3, Settings](#).)

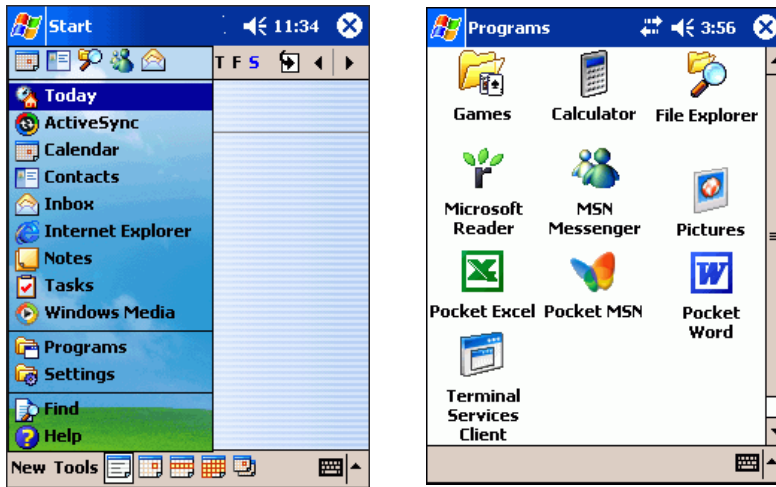
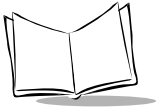


Figure 2-16. Start Menu

Note: Some programs have abbreviated labels for check boxes and drop-down list. To see the full label, hold the stylus on the label. Drag the stylus off the label so that the command is not carried out.



Using Pop-up Menus

With pop-up menus, you can quickly choose an action for an item. For example, use the pop-up menu in the contact list to delete a contact, make a copy of a contact, or send an e-mail message to a contact. The actions in the pop-up menus vary from program to program.

To access a pop-up menu, hold the stylus on the item you want to perform the action on. When the menu appears, lift the stylus, and tap the action to perform, or tap outside the menu to close it without performing an action.

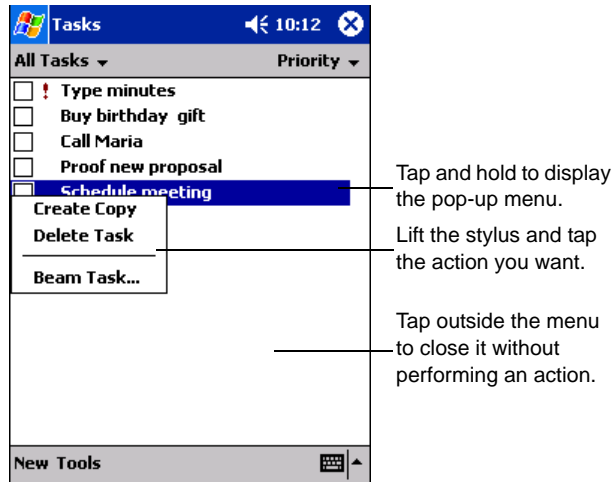


Figure 2-17. Pop-up Menu

Notifications

Your terminal notifies you when you have something to do. For example, if you've set up an appointment in *Calendar*, a task with a due date in *Tasks*, or an alarm in *Clock*, you'll be notified in any of the following ways:

- a message box appears on the screen
- a sound, which you can set, is played
- the terminal vibrates (this is a programmable feature).

To choose reminder types and sounds for your terminal, tap *Start - Settings - Personal* tab - *Sounds & Notifications* icon. Select the desired options. See [Sounds & Notifications](#) on page 3-22 for more information.

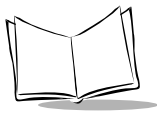
Entering Information

To enter information, you may:

- Use the keypad. (See [Using the Keypad](#) on page 2-5 and [Appendix D, Keypad Maps](#) for keypad functions.)
- Use the input panel to enter typed text, either using the soft keyboard or writing characters.
- Write directly on the screen.
- Draw pictures on the screen.
- Speak into the microphone to record a message.
- Scan bar code data into data fields.
- Use Microsoft® ActiveSync® to synchronize or copy information from your host computer to your terminal. For more information on ActiveSync, see [Chapter 4, Communication](#) or ActiveSync Help on your host computer.

Entering Information Using the Input Panel

Use the input panel to enter information in any program. You can either type using the soft keyboard or write using *Block Recognizer*, *Letter Recognizer*, or *Transcriber*. In any case, the characters appear as typed text on the screen.



To show or hide the input panel, tap the **Input Panel** button. Tap the arrow next to this button to view input methods.

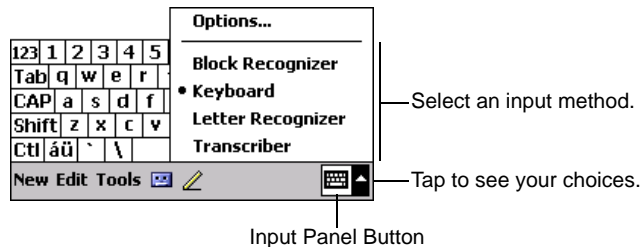


Figure 2-18. Input Panel Button

When you use the input panel, your terminal anticipates the word you are typing or writing and displays it above the input panel. When you tap the displayed word, it is inserted into your text at the insertion point. The more you use your terminal, the more words it learns to anticipate.

To change input settings, such as the number of words suggested at one time, select *Options* from the Input Panel menu, and tap the tabs to see each setting screen.

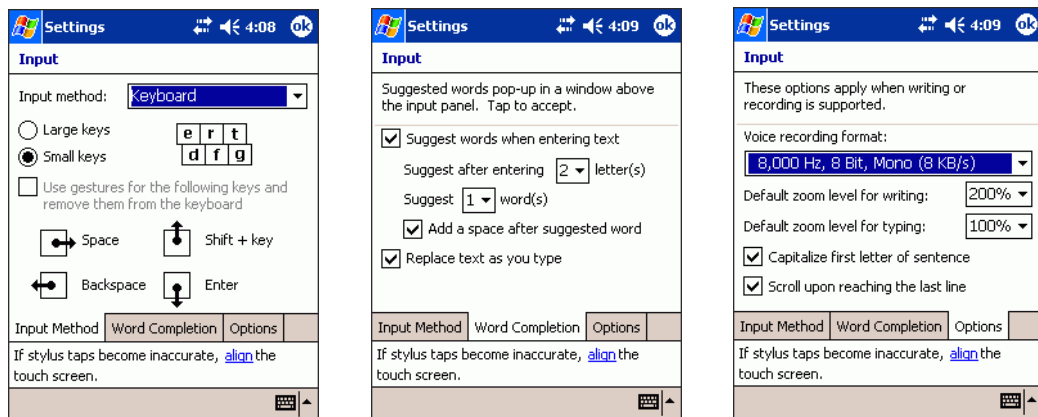


Figure 2-19. Input Panel Options

Using the Soft Keyboard

To type with the Soft Keyboard:

1. Tap the arrow next to the **Input Panel** button, then *Keyboard*.

2. On the Soft Keyboard, tap the keys with your stylus.

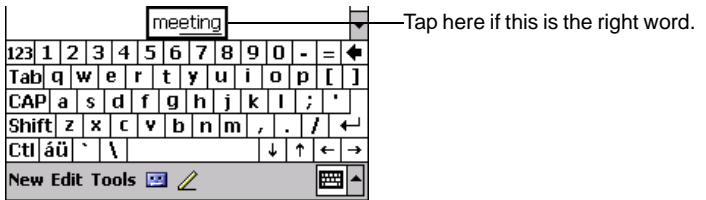


Figure 2-20. Soft Keyboard

Using the Block Recognizer

To use the Block Recognizer:

1. Tap the arrow next to the **Input Panel** button, then *Block Recognizer*.
2. Write a letter in the left side of the box, or a number in the right side, using special character strokes.

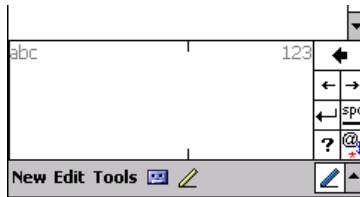
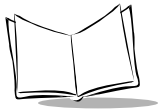


Figure 2-21. Block Recognizer

When you write a letter, it is converted to typed text on the screen. For specific instructions on using Block Recognizer, with Block Recognizer open, tap the question mark next to the writing area, or see [Appendix A, Block Recognizer Characters](#).



Using the Letter Recognizer

To use Letter Recognizer:

1. Tap the arrow next to the **Input Panel** button, then *Letter Recognizer*.
2. Write letters or numbers in the writing area, just as you would on paper. Write capital letters in the left side of the box, numbers in the right side, and lower case letters in the center.

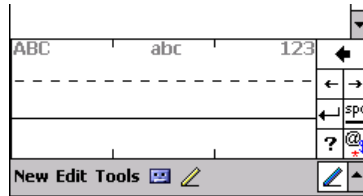


Figure 2-22. Letter Recognizer

When you write a letter, it is converted to typed text on the screen. For specific instructions on using Letter Recognizer, with Letter Recognizer open, tap the question mark next to the writing area.

Using the Transcriber

To use Transcriber:

1. Tap the arrow next to the **Input Panel** button, then *Transcriber*.



Figure 2-23. Transcriber

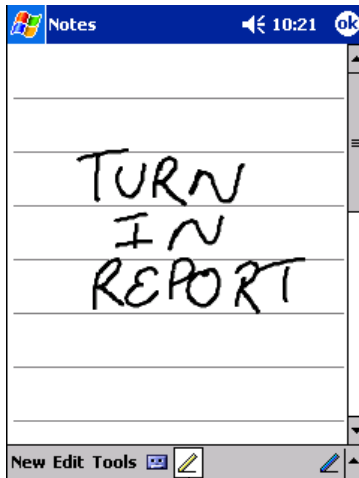
2. Write anywhere on the screen.

When you write anywhere on the screen, Transcriber changes the written characters to typed characters. For specific instructions on using Transcriber, with Transcriber open, tap the question mark under the writing area.

Writing on the Screen

In any program that accepts writing, such as the Notes program and the *Notes* tab in Calendar, Contacts, and Tasks, you can use your stylus to write directly on the screen.

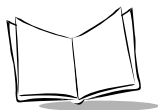
To write on the screen, tap the **Pen** button to switch to writing mode. Lines appear on the screen to guide you.



Tap the Pen button and
use your stylus like a pen.

Figure 2-24. Writing on the Screen

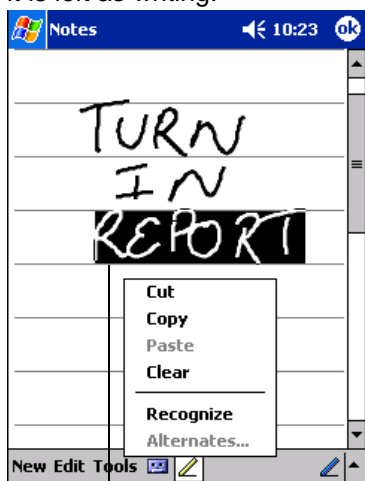
Note: Some programs that accept writing do not have the **Pen** button. See the documentation for that program to find out how to switch to writing mode.



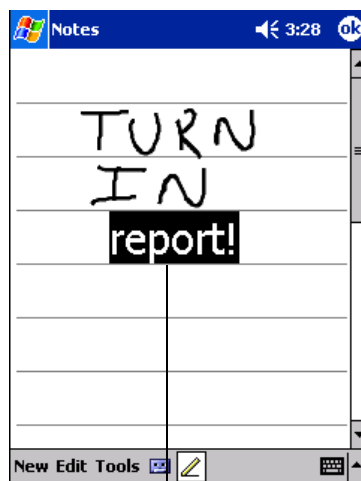
Converting Writing to Text

To convert your writing to text, tap *Tools - Recognize*.

To convert certain words, select them before tapping *Recognize* on the *Tools* menu (or tap and hold the selected words, then tap *Recognize* on the pop-up menu). If a word is not recognized, it is left as writing.



Select the text you want to convert and tap *Recognize* on the pop-up menu.



The writing is turned into text.

Figure 2-25. Writing on the Screen

If the conversion is incorrect, select different words from a list of alternates or return to the original writing. Tap and hold the incorrect word only. On the pop-up menu, tap *Alternates*.

A list of alternate words appears. Tap the word you want to use, or tap the writing at the top of the menu to return to the original writing.

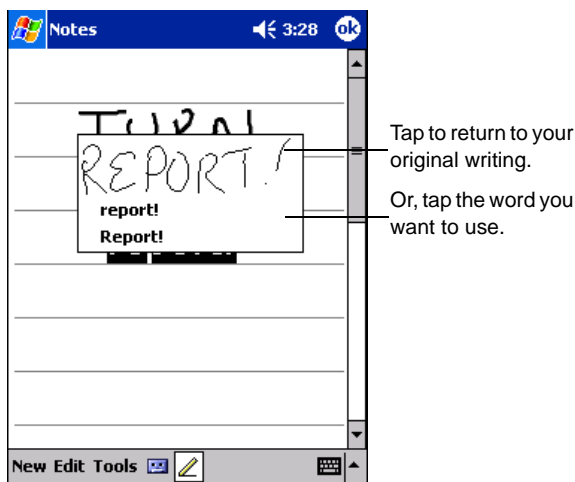
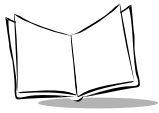


Figure 2-26. Alternate List

Writing Tips

- Write neatly.
- Write on the lines and draw descenders below the line. Cross off the "t" and write apostrophes below the top line so they are not confused with the word above. Write periods and commas above the line.
- For better recognition, try increasing the zoom level to 300% using the *Tools* menu.
- Leave large gaps between words so your terminal can easily tell where words begin and end.
- Hyphenated words, foreign words that use special characters such as accents, and some punctuation cannot be converted.
- If you add writing to a word to change it (such as changing a "3" to an "8") after you attempt to recognize the word, the writing you add is not included if you try to recognize the writing again.



Selecting Text

To edit or format typed text, select it by dragging the stylus across the text. Cut, copy, and/or paste text by holding the selected words then tapping an editing command on the pop-up menu, or by tapping the command on the *Edit* menu.

Selecting Writing

To select writing to edit or format:

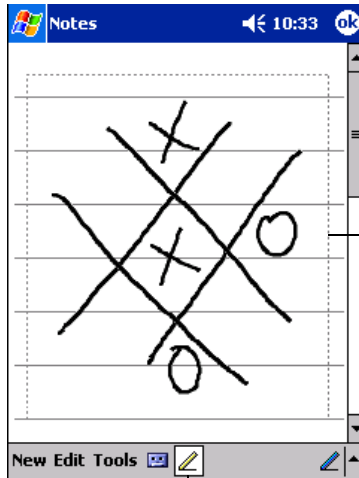
1. Tap and hold the stylus next to the text you want to select until the insertion point appears.
2. Drag the stylus across the text.

If you accidentally write on the screen, tap *Tools - Undo* and try again. You can also select text by tapping the **Pen** button to deselect it, then dragging the stylus across the screen.

You can cut, copy, and paste written text in the same way you work with typed text: tap and hold the selected words, then tap the command from the pop-up menu, or select the command from the *Edit* menu.

Drawing on the Screen

Drawing on the screen is similar to writing on the screen. To create a drawing, cross three ruled lines on your first stroke. A drawing box appears. Subsequent strokes in or touching the drawing box become part of the drawing. Drawings that do not cross three ruled lines are treated as writing.



The drawing box indicates the boundaries of the drawing.

Pen button.

Figure 2-27. Drawing on the Screen

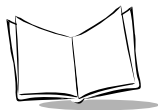
Note: To change the zoom level, select a zoom level from the Tools menu.

Selecting a Drawing

To select a drawing to edit or format, tap and hold the stylus on the drawing until the selection handle appears.

To select multiple drawings, deselect the **Pen** button, then drag to select the drawings you want.

To cut, copy, and paste drawings, tap and hold the selected drawing, then tap an editing command on the pop-up menu, or tap the command from the *Edit* menu. To resize a drawing, deselect the **Pen** button and drag a selection handle.



Recording a Message

You may record a message to capture thoughts, reminders, and phone numbers. In Calendar, Tasks, and Contacts, you can include a recording in the *Notes* tab. In the Notes program, you can either create a stand-alone recording or include a recording in a written note.

To create a recording:

1. Start the Notes application.
2. Tap the *Record* icon to begin recording.
3. Hold the terminal's microphone near your mouth or other source of sound.

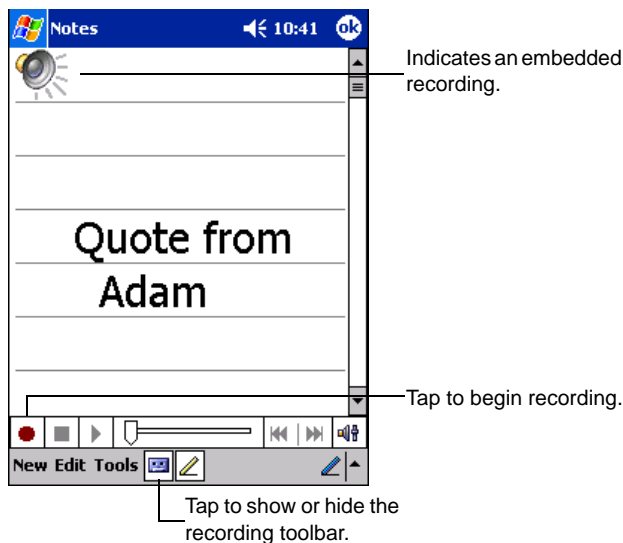


Figure 2-28. Recording Screen

4. When you are finished, tap the **Stop** button. The new recording appears in the note list or as an embedded icon.
5. To play a recording, tap it in the list or tap its icon in the note.

Using My Text

When using Inbox or MSN Messenger, use My Text to quickly insert preset or frequently used messages into the text entry area. To insert a message, tap *My Text* and tap a message.

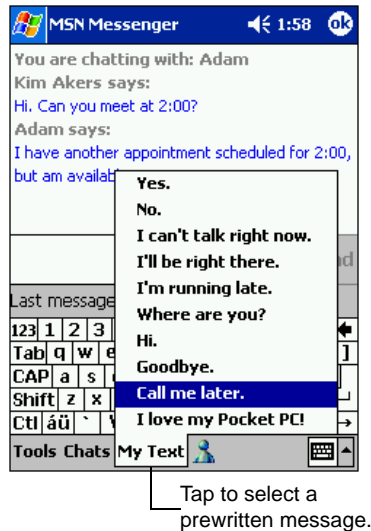


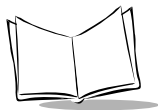
Figure 2-29. Using My Text

Note: *You can add text after inserting a My Text message before sending it.*

To edit a My Text message, tap *Tools - Edit - My Text Messages*. Select the message you wish to edit and make the changes.

Entering Information Using 15-Key Keypad

The 15-key keypad uses an alphanumeric keypad that produces the 26-character alphabet (A-Z, a-z), numbers (0-9), function keys (F1 - F10) and assorted characters. The keypad is color-coded to indicate which modifier key (ALPHA or function) to press to produce a particular character or action. The keypad default is numeric, producing numbers. See [Using the Keypad](#) on page 2-5 and [Appendix D, Keypad Maps](#) for keypad functions.



Finding Information

The Find feature locates information. Tap *Start - Find* to launch this feature. Enter the text you want to find, select a data type, then tap *Go*.

To find information taking up storage space on your terminal, select *Larger than 64 KB* from the *Type* drop-down list.

You can also use the File Explorer to find files and organize them into folders. Tap *Start - Programs - File Explorer* to launch Explorer.

Tap to change folders.

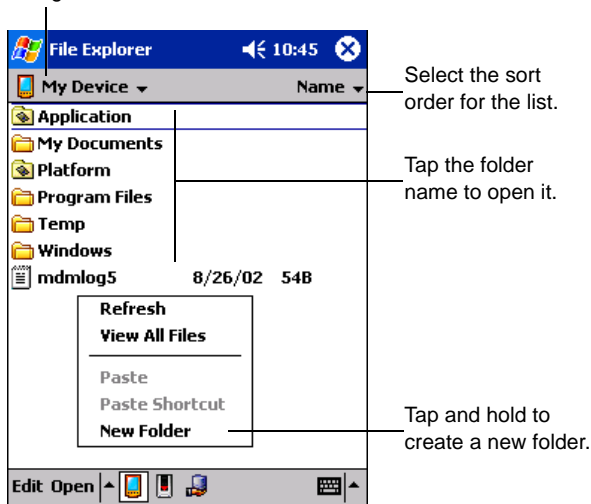


Figure 2-30. File Explorer

Note: To move files in File Explorer, tap and hold the item, then tap *Cut* or *Copy* and *Paste* on the pop-up menu.

Scanning

The terminal has an integrated scanner which allows you to collect data by scanning one dimensional bar codes including Reduced Space Symbology (RSS) variants.

To scan bar codes with the terminal:

1. Ensure that a scan enabled application is loaded on the terminal.
2. Aim the scan exit window at the bar code.
3. Press either the right or left scan trigger. Ensure the red scan beam covers the entire bar code. The green scan LED lights and a beep sounds to indicate a successful decode.

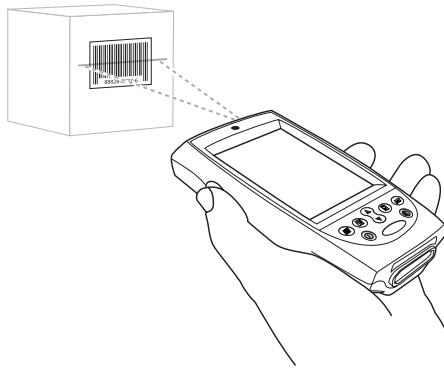


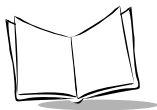
Figure 2-31. Scanning

Scan LED Indicator

See [Parts of the Terminal](#) on page 1-4 for the location of the scan LED on the terminal.

Table 2-8. Scan LED Indicator

LED Status	Indication
Off	Not scanning.
Solid Red	Laser enabled. Scanning in process.
Solid Green	Successful decode.



Resetting the Terminal

If the terminal stops responding to input, reset it.

Performing a Soft Reset

A soft reset restarts the terminal and saves all stored records and entries.

Caution

Files that remain open during a soft reset may not be retained.

DO NOT perform a soft reset if the terminal is suspended. Press the power button to wake the terminal.

To perform a soft reset on the standard 6-key keypad, press the Enter and Function keys while holding down either the left or right scan trigger and then release the keys.

To perform a soft reset on the 15-key keypad, press **ENTER** and **FUNC** keys while holding down either the left or right scan trigger and then release the keys.

Performing a Hard Reset

A hard reset also restarts the terminal, but erases all stored records and entries. *Therefore, never perform a hard reset unless a soft reset does not solve the problem.*

Note: *You can restore any data previously synchronized with a computer during the next ActiveSync operation. See [Chapter 4, Communication](#) for detailed ActiveSync instructions.*

To perform a hard reset:

Caution

With a hard reset, formats, preferences, and other settings are restored to their factory default settings.

1. Remove the battery cover.
2. While holding down the Function key, use the stylus to gently press the reset button.

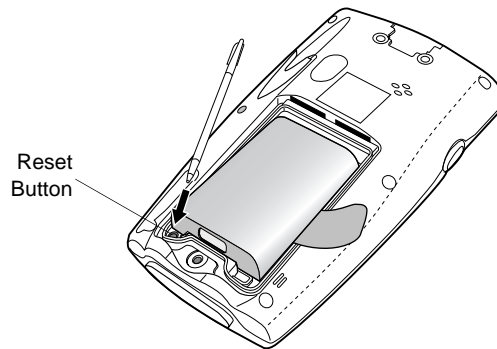
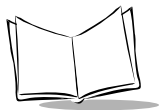
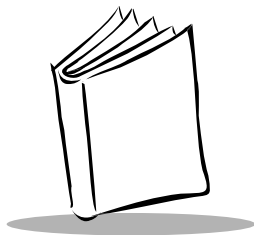


Figure 2-32. Reset Button

3. Release the Function key.
4. Replace the battery cover.
5. Press the Power button.
6. As the terminal initializes its Flash File system, the Symbol splash screen displays for about a minute.
7. Calibrate the screen. See [Calibrating the Screen](#) on page 1-21 to perform an initial setup of the terminal.

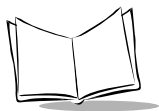




Chapter 3 Settings

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Introduction

This chapter provides basic instructions for customizing your terminal by adjusting settings.

Adjusting Settings

To view available options for your terminal settings, tap *Start - Settings*. You can adjust settings in either the *Personal* tab or the *System* tab.

Personal Tab

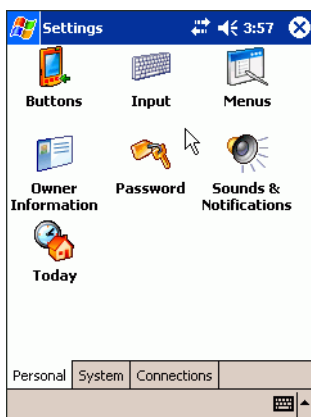




Figure 3-1. Settings - Personal Tab

[Table 3-1](#) lists the applications available in the *Personal* tab.

Table 3-1. Personal Tab Applications

Icon	Description
 Buttons	Assign programs to the application hardware buttons. See Buttons on page 3-8 for more information.
 Input	Switch input methods and set input options. See Input on page 3-11 for more information.

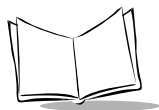







Table 3-1. Personal Tab Applications (Continued)

Icon	Description
 Menus	Configure the items that appear in the <i>Start</i> menu. See Menus on page 3-14 for more information.
 Owner Information	Change owner's personal profiles. See Owner Information on page 3-16 for more information.
 Password	Change owner's password and set security options. See Passwords on page 3-19 for more information.
 Sounds & Notifications	Select the type of actions for which you want to hear sounds and customize how you are notified about different events. See Sounds & Notifications on page 3-22 for more information.
 Today	Customize the information displayed on the <i>Today</i> screen. See Today on page 3-24 for more information.





System Tab



Figure 3-2. Settings - System Tab

Table 3-2 lists the applications available in the *System* tab.

Table 3-2. System Tab Applications

Icon	Description
 About	Provides device information and name. See About on page 3-26 for more information.
 Backlight	Customize when and for how long the backlight should stay on. See Backlight on page 3-29 for more information.
 Bluetooth Versions	Provides Bluetooth software information. See Bluetooth Versions on page 3-32. Available only on PPT 8866 configurations.
 Certificates	View and modify digital certificates which are used by some applications for establishing trust for secure communications. See Certificates on page 3-33 for more information.

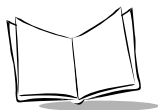


Table 3-2. System Tab Applications (Continued)










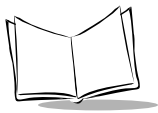
Icon	Description
 Clock	Change date, time and time zone information. See Clock on page 3-35 for more information.
 IrDA	Turns the IrDA port on or off to allow the Bluetooth radio access to two more COM ports (PPT 8860 only). See IrDA on page 3-39 for more information.
 Memory	Adjust the allocation of storage and program memory. See Memory on page 3-40 for more information.
 Power	View battery status and change power management options. See Power on page 3-43 for more information.
 Regional Settings	Change how numbers, currencies, dates, and times are displayed. See Regional Settings on page 3-47 for more information.
 Remove Programs	Remove loaded programs from RAM. See Remove Programs on page 3-50 for more information.
 Screen	Align the touch screen and enable ClearType fonts. See Screen on page 3-51 for more information.
 Symbol Settings	Change settings unique to the terminal. See Symbol Settings on page 3-52 for more information.

Table 3-2. System Tab Applications (Continued)

Icon	Description
 Wireless Adapter Control	Turns the Spectrum24 wireless radio on or off. See Wireless Adapter Control on page 3-61. Available only on PPT 8846 and PPT 8866 configurations.



Buttons

In addition to key functions, you can assign an application to a key. Then you can open a frequently used application by pressing one key.

Program Buttons

To assign an application to a key on the keypad:

1. Tap *Start - Settings - Personal tab - Buttons icon - Program Buttons tab*.

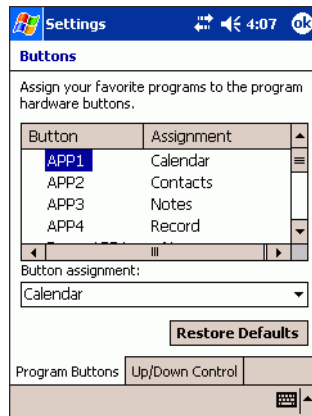


Figure 3-3. Buttons Window - Program Buttons Tab

2. Select a key from the *Button* list.
3. Select a key or application from the *Button assignment:* drop-down list.
4. Tap **ok**.

To restore defaults at anytime tap **Restore Defaults**. Defaults are also restored when you hard reset the terminal. [Table 3-3](#) lists the default button/key assignments.

Table 3-3. Default Button Assignments

Standard 6-key Keypad		15-key Keypad	
Button/Key	Default	Button/Key	Default
Trigger	Trigger	Trigger	Trigger
Enter	Action	Enter	Action

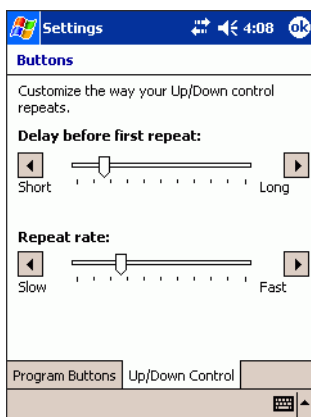
Table 3-3. Default Button Assignments (Continued)

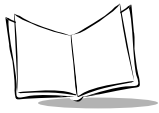
Standard 6-key Keypad		15-key Keypad	
Button/Key	Default	Button/Key	Default
APP1	Calendar	F1	<None>
APP2	Contacts	F2	<None>
APP3	Tasks	F3	<None>
APP4	Record	F4	<None>
Func + APP1	<None>	F5	Soft Keyboard
Func + APP2	Soft keyboard	F6	Recalibrate
Func + APP3	<None>	F7	Decrease brightness
Func + APP4	Recalibrate	F8	Increase brightness
		F9	Escape
		F10	Tab

Up/Down Control

To set the key repeat rate:

1. Tap *Start* - *Settings* - *Personal* tab - *Buttons* icon - *Up/Down Control* tab.

**Figure 3-4. Buttons Window - Up/Down Control Tab**



2. Adjust the *Delay before first repeat*: slide bar to change the time elapsed before scrolling begins.
3. Adjust the *Repeat rate* slide bar to change the time it takes to scroll from one item to the next.
4. Tap **ok**.

Input

Use the *Input* window to switch input methods and set input options.

Input Method

To select an input method:

1. Tap *Start* - *Settings* - *Personal* tab - *Input* icon - *Input Method* tab.

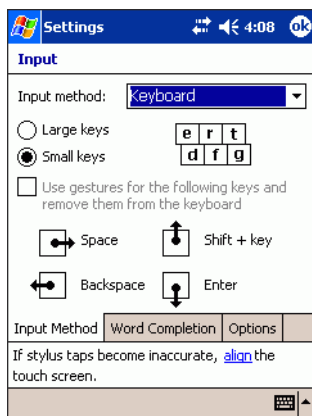
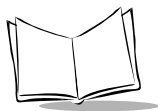


Figure 3-5. Input Window - Input Method Tab

2. From the *Input method:* drop-down list, select the input method.
3. Make any additional desired changes to the settings.
4. Tap **ok**.



Word Completion

To adjust how suggested words pop-up in a window above the input panel:

1. Tap **Start** - **Settings** - **Personal** tab - **Input** icon - **Word Completion** tab.

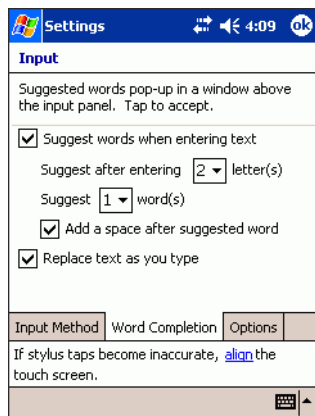


Figure 3-6. Input Window - Word Completion Tab

2. Make the desired changes to the settings.
3. Tap **ok**.

Options

To adjust the options for writing and recording:

1. Tap *Start - Settings - Personal tab - Input icon - Options tab*.

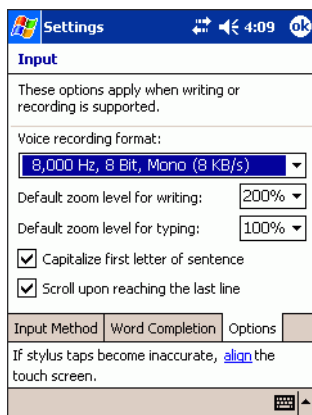
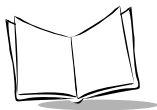


Figure 3-7. Input Window - Options tab

2. Make the desired changes to the settings.
3. Tap **ok**.



Menus

Use *Menus* window to change the items that appear in the *Start* menu.

Start Menu

To change the items that appear in the *Start* menu:

1. Tap *Start - Settings - Personal* tab - *Menus* icon - *Start Menu* tab.

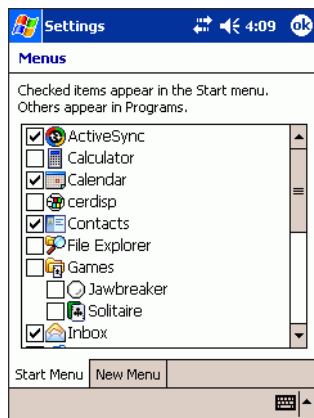


Figure 3-8. Menus Window - Start Menu Tab

2. Select the programs that you want to appear in the *Start* menu.
3. Tap **ok**.

You can create subfolders and shortcuts to appear under *Start* menu. In ActiveSync on the host computer, click *Explore*. Double-click *My Pocket PC*, double-click *Windows*, double-click *Start Menu*, and then create the folders and shortcuts that you want.

New Menu

To enable the *New* menu:

Tap *Start* - *Settings* - *Personal* tab - *Menus* icon - *New Menu* tab.

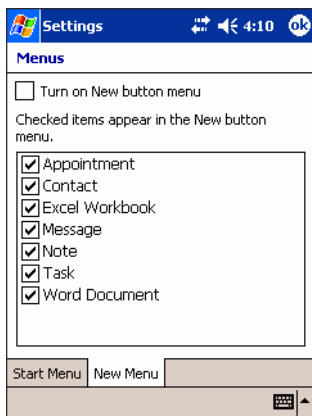


Figure 3-9. Menus Window - New Menu Tab

1. Select the *Turn on the New button menu* check box.
2. Select the items to appear on the menu.

An arrow appears next to *New* in the command bar of certain programs such as Pocket Word, Pocket Excel, Contacts, Calendar, and Tasks. You can tap this arrow and then tap a new item to create.

3. Tap **ok**.



Owner Information

Use the *Owner Information* window to enter information about the owner. The information can be displayed when the terminal is turned on.

Identification

To enter personal information:

1. Tap *Start - Settings - Personal tab - Owner Information icon - Identification tab*.

Figure 3-10. Owner Information Window - Identification Tab

2. Fill in or edit the data as desired.
3. To have this information display when you start the terminal, select the *Show information when device is turned on* check box.
4. Tap **ok**.

Notes

To add more information about the owner:

1. Tap *Start - Settings - Personal tab - Owner Information icon - Notes tab*.

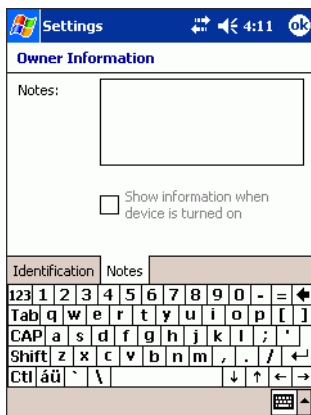
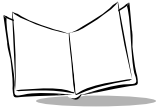


Figure 3-11. Owner Information Window - Notes Tab

2. Enter information in the *Notes:* box.
3. To have this information display when you start the terminal, select the *Show information when device is turned on* check box.
4. Tap **ok**.



After the information is entered and the *Show information when device is turned on* check boxes are selected, the *Welcome* window appears whenever the terminal is powered on.

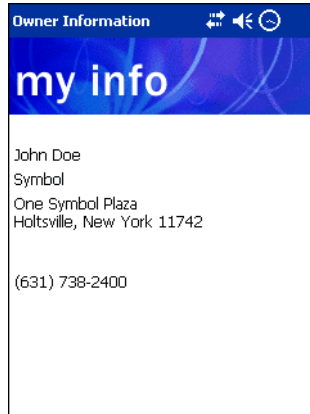


Figure 3-12. Welcome Screen

Passwords

Use the *Password* window to set a password to disable unauthorized access to the terminal.

Password

If your device is configured to connect to a network, use a strong (difficult to figure out) password to help protect network security. Password cracking tools continue to improve and the computers used to crack passwords are more powerful than ever.

Caution

If you forget your password, or if your terminal has become corrupted and soft resetting doesn't work, you must perform a hard reset. Performing a hard reset erases all files and data that you have created, and programs you have installed.

1. Tap *Start - Settings - Personal* tab - *Password* icon - *Password* tab.

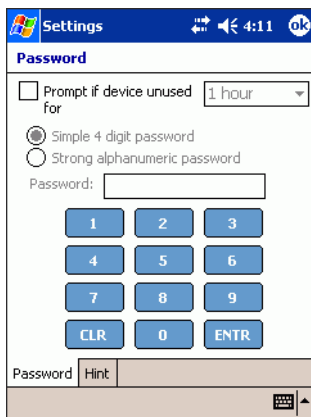


Figure 3-13. Password Window - Password Tab

2. Select *Prompt if device unused for* check box to enable password protection.
3. From the drop down list, select a time value for the protection to take affect after non-use.



4. Select either *Simple 4 digit password* or *Strong alphanumeric password* radio button to set a password.
5. For a simple password, In the *Password* field, enter a four digit password.
6. For a stronger password:
 - a. In the *Password:* field, enter a seven character password . A strong password must contain at least seven characters that are a combination of uppercase and lowercase letters, numerals, and punctuation.

Settings

Password

☒ Prompt if device unused for 1 hour

☐ Simple 4 digit password

☒ Strong alphanumeric password

Password: *****

Confirm: *****

Password Hint

123	1	2	3	4	5	6	7	8	9	0	-	=	⬅
Tab	q	w	e	r	t	y	u	i	o	p	[]	
CAP	a	s	d	f	g	h	j	k	l	;	'		
Shift	z	x	c	v	b	n	m	,	.	/	↵		
Ctl	â	û	ˆ	˜	˘								

Figure 3-14. Alphanumeric Password

- b. In the *Confirm:* field, re-enter the password.
7. Tap **ok**.

Hint

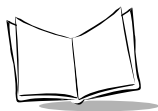
To set hint so that you can remember your password:

1. Tap *Start - Settings - Personal tab - Password icon - Hint tab*.



Figure 3-15. Password Window - Hint Tab

2. In the text box, enter a password hint that would remind you of the password you set.
3. Tap **ok**.



Sounds & Notifications

Use the *Sounds & Notifications* window to set event sounds and volume options.

Volume

To adjust the system volume and enable event sounds:

1. Tap *Start - Settings - Personal* tab - *Sounds & Notifications* icon - *Volume* tab.

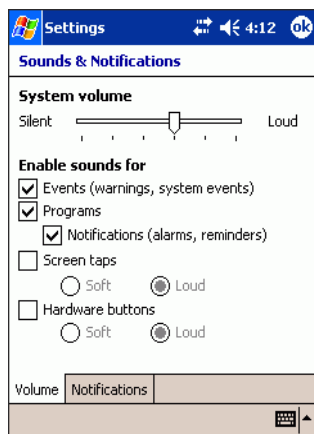


Figure 3-16. Sounds & Notifications Window - Volume Tab

2. Use the slide bar to change the system volume.
3. Select the desired *Enable Sound* options.

Note: *Turning off sounds saves power and prolongs battery life.*

4. Tap **ok**.

Notifications

On the Notifications tab, you can customize how you are notified about different events.

1. Tap *Start - Settings - Personal tab - Sounds & Notifications icon - Notifications tab*.

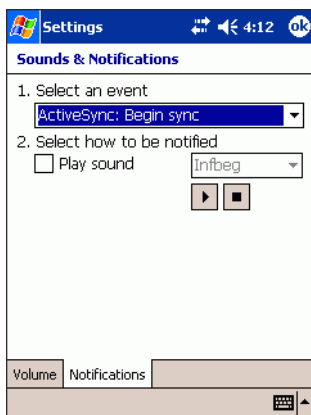
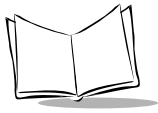


Figure 3-17. Sounds & Notifications Window - Notifications Tab

2. Select the event name from the *Select an event list* drop-down list.
3. Select the *Play sound* check box to enable the sound notification.
4. Select a sound from the drop-down list.
5. Tap **ok**.



Today

Use the *Today* window to customize the *Today* screen.

Appearance

To change the appearance of the *Today* screen:

1. Tap *Start* - *Settings* - *Personal* tab - *Today* icon - *Appearance* tab.

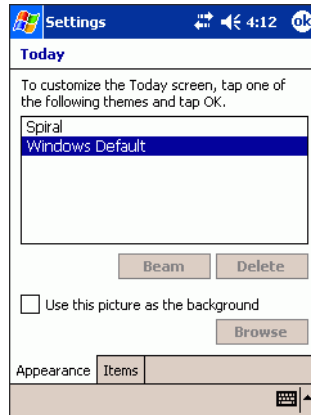


Figure 3-18. Today Window - Appearance Tab

2. Select the desired theme for the *Today* screen background. To use your own background, select *Use this picture as the background* check box and tap **Browse** to locate the desired file on the terminal.
3. To beam a theme to another terminal, select the desired theme and tap **Beam**.
4. To delete a theme, select the desired theme and tap **Delete**.
5. Tap **ok**.

Items

To select items that appear on the *Today* screen:

1. Tap *Start - Settings Personal* tab - *Today* icon - *Appearance* tab.

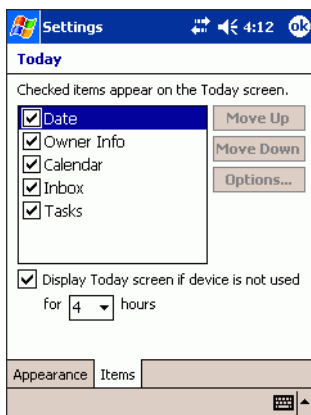


Figure 3-19. Today Window - Items Tab

2. Select the items you want to appear on the *Today* screen. To customize the information further, select an information type, and then tap **Options** (not available for all information types).
3. Tap **ok**.



About

Use the *About* window to view general system properties, change memory settings, input device name and view copyright information.

Version

The *Version* tab view displays general system settings:

1. Tap *Start - Settings - System tab - About icon - Version tab*.

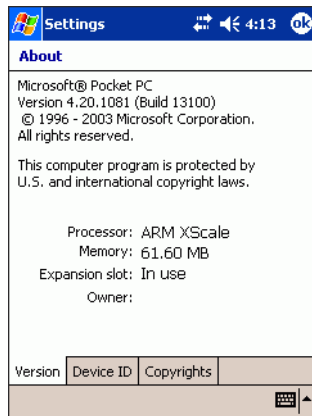


Figure 3-20. About Window - Version Tab

2. Tap **ok**.

Device ID

The *Device ID* tab allows you to customize the name and description of the terminal:

1. Tap *Start - Settings - System tab - About icon - Device ID* tab.

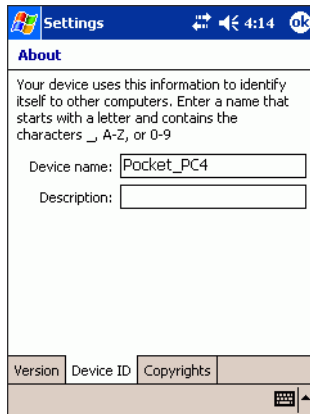
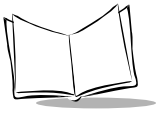


Figure 3-21. About Window - Device ID Tab

2. In the *Device name:* field, enter a name for the terminal. Ensure that you do not use spaces.
3. In the *Description:* field, enter a description for the terminal.
4. Tap **ok**.



Copyrights

The *Copyrights* tab allows you to view any relevant copyright information.

1. Tap *Start* - *Settings* - *System tab* - *About* icon - *Copyrights* tab.

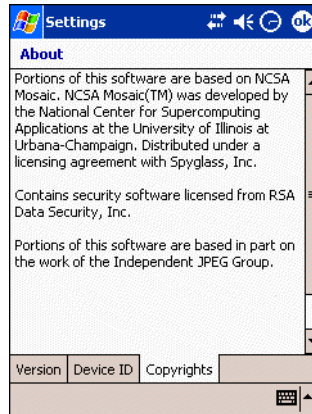


Figure 3-22. About Window - Copyrights Tab

2. Tap **ok**.

Backlight

Use the *Backlight* window to conserve battery power or to turn off the backlight when the terminal is idle. You also have options to turn on the backlight when you tap the screen or press a key.

Battery Power

To set the backlight settings when using battery power:

1. Tap *Start - Settings - System tab - Backlight icon - Battery Power tab*.

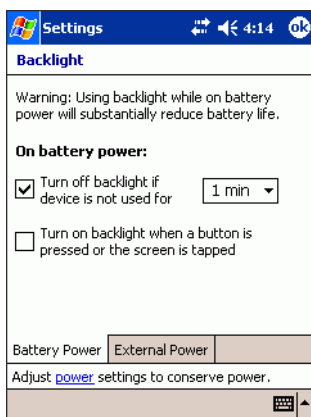
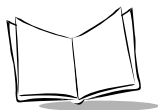


Figure 3-23. Backlight Window - Battery Power Tab

2. Make the desired selections. See [Table 3-4](#) for backlight settings.
3. Tap **ok**.



Note: When you perform a hard reset all settings selected in this view return to the default settings. The settings are maintained after a soft reset.

Table 3-4. Battery Power Backlight Settings

Status	Conditions of light On/Off	Default (Hard Reset)
On Battery Power	Select the <i>Turn off backlight if device is not used for</i> check box to turn off the backlight after a certain period of time has passed unused. Period of time can be selected from the list. Available timings are 10 sec, 30 sec, 1 min, 2 min, 3 min, 4 min and 5 min.	Check box is selected. Default time is one minute.
	Select the <i>Turn on backlight when a button is pressed or the screen is tapped</i> check box to turn on the backlight when a key is pressed or the screen is tapped.	Check Box is not selected.

Note: To change display brightness level, see [Symbol Settings](#) on page 3-52.

External Power

To set the backlight settings when using external AC power:

1. Tap *Start - Settings - System tab - Backlight icon - External Power tab*.

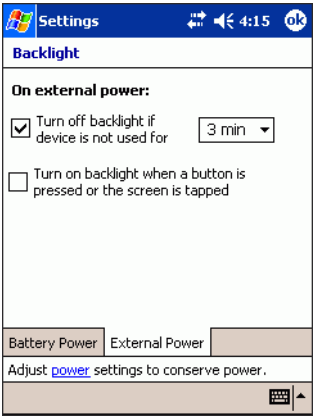


Figure 3-24. Backlight Window - External Power Tab

2. Make the desired selections. See [Table 3-5](#) for backlight settings.
3. Tap **ok**.

Table 3-5. External Power Backlight Settings

Status	Conditions of light On/Off	Default (Hard Reset)
On External Power	Select the <i>Turn off backlight if device is not used for</i> check box to turn off the backlight after a certain period of time has passed unused. Period of time can be selected from the list. Available timings are 1 min, 2 min, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 9 min and 10 min.	Check Box is selected. Default time is one minute.
	Select the <i>Turn on backlight when a button is pressed or the screen is tapped</i> check box to turn on the backlight when a key is pressed or the screen is tapped.	Check Box is not selected.



Bluetooth Versions

Note: *This feature is only available on PPT 8866 configurations.*

To view the Bluetooth version information:

1. Tap *Start - Settings - System tab - Bluetooth Versions icon.*



Figure 3-25. Bluetooth Versions Window

2. Tap **ok** to close the window.

Certificates

On your terminal you can add and delete public key certificates. These certificates help establish your identity when you are logging onto a secured network, such as a corporate network. Certificates also help establish the identity of other computers, such as servers, with which you connect. This helps prevent unauthorized users from accessing your terminal and information.

You can store two types of certificates on your terminal: personal certificates that establish your identity, and root certificates that establish the identity of servers with which you connect. Your terminal may include a set of preinstalled certificates. For information about viewing and deleting certificates, see the sections below.

Personal

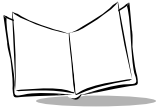
1. Tap *Start - Settings - System tab - Certificates icon - Personal tab*.



Figure 3-26. Certificates Window - Personal Tab

The list box displays the name of the certificate issuer and the expiration date.

2. To view more information about a certificate, select it from the list box.
3. To delete a certificate, tap and hold it in the list box, and then tap *Delete*.
4. Tap **ok**.



Root

1. Tap *Start* - *Settings* - *System* tab - *Certificates* icon - *Root* tab.

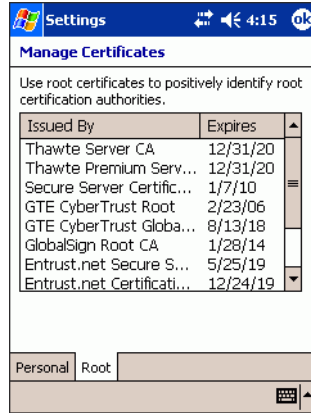


Figure 3-27. Certificates Window - Root Tab

The list box displays the name of the certificate issuer and the expiration date.

2. To view more information about a certificate, select it from the list box.
3. To delete a certificate, tap and hold it in the list box, and then tap *Delete*.
4. Tap **ok**.

Clock

Use the *Clock* window to change the date, time, time zone and set alarms.

Time

To set the date, time and time zone:

1. Tap *Start* - *Settings* - *System* tab - *Clock* icon - *Time* tab.

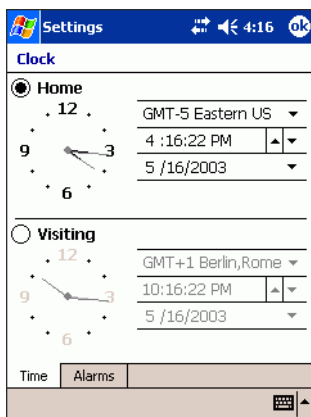
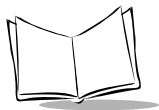


Figure 3-28. Clock Window - Time Tab

2. Select the *Home* radio button.
3. Select your current time zone from the time zone drop-down list.
4. To set the hour:
 - a. Tap on the hour field and use the up and down arrows to the right of the time to adjust the hour.
 - b. On the clock face, tap and drag the hour hand to the current hour.
5. To set the minutes:
 - a. tap on the minute field and use the up and down arrows to the right of the time to adjust the minutes
 - b. On the clock face, tap and drag the minute hand to the current minutes.
6. To set the date, tap in the date field.



7. Tap the down arrow to the right of the date field. The calendar displays.



Figure 3-29. Calendar

8. To select the month and year, tap the arrows to the right or left of the month until the current month displays.
9. Tap the day of the month. The calendar disappears.
10. Tap **ok**.

If you visit a particular time zone often, set it as your *Visiting* time zone so that you can quickly see the correct date and time.

A clock displays on the Navigation bar. To view the current date and time, tap the *Time* icon to see today's date. See [Time Icon](#) on page 2-18 for more information.

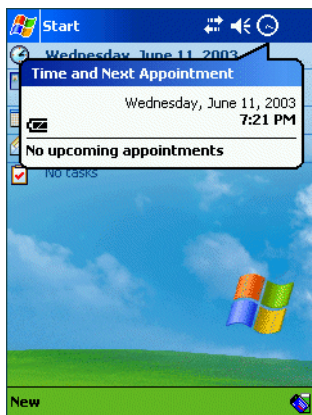


Figure 3-30. Time and Next Appointment Message

To switch from analog to digital clock display, tap and hold the *Time* icon. Select *Analog* or *Digital*.

Alarms

You can use your terminal as a travel alarm clock by setting a wake-up alarm.

1. Tap *Start - Settings - System tab - Clock icon - Alarms tab*.

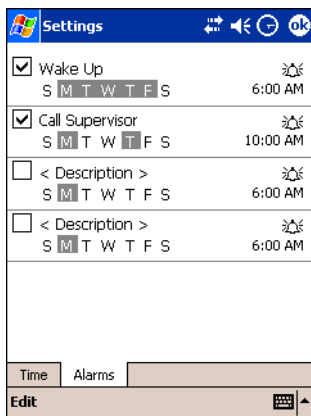


Figure 3-31. Clock Window - Alarms Tab

2. In the *Description* field, enter a name for the alarm.
3. Tap the letter(s) representing the day(s) of the week that the alarm be enabled.
4. Tap the bell icon to set alarm features. The alarm settings window appears.

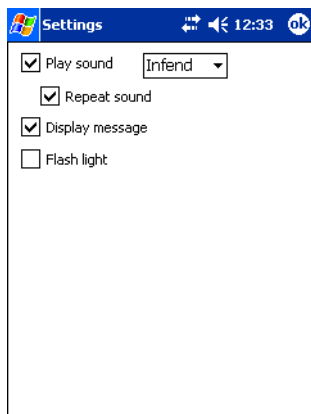


Figure 3-32. Alarm Settings Window



5. Select the *Play sound* check box to enable a sound when the alarm starts.
6. From the drop-down list, select the sound that plays when the alarm goes off.
7. Select *Repeat sound* check box to repeat the sound notification.
8. Select *Display message* checkbox to enable a message to appear on the screen when the alarm goes off.
9. Tap **ok**.
10. Tap the time field to set the alarm time. The clock window appears.

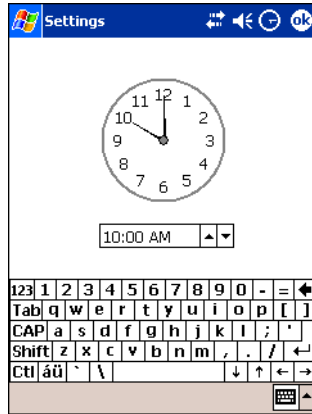


Figure 3-33. Alarm Clock Setting Window

11. Use the time field and arrow buttons to set the time.
12. Tap **ok**.
13. Set up to three more alarms.
14. Tap **ok**.
15. To change the way the date or time is displayed on the terminal, see [Regional Settings](#) on page 3-47.

IrDA

Use the *IrDA Settings* window to enable or disable the IrDA.

1. Select *Start - Settings - Control Panel*.
2. Double-tap the *IrDA* icon. The *IrDA Settings* window appears.

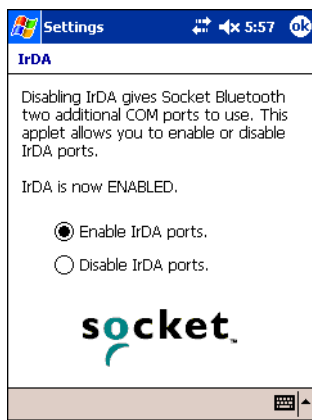


Figure 3-34. IrDA Settings Window

3. Select either *Enable IrDA ports* or *Disable IrDA ports* radio button.
4. Tap **OK**. A confirmation box appears requesting to reset the terminal. Tap **OK**.

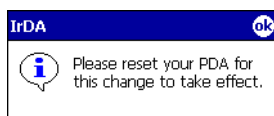
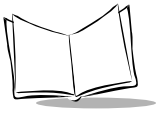


Figure 3-35. Reset Confirmation Box

5. Perform a soft reset. See [Resetting the Terminal](#) on page 2-36.



Memory

Use the *Memory* window to adjust RAM allocation, view storage card memory usage and stop active programs.

Main

To temporarily adjust the allocation of storage and program memory:

1. Tap *Start - Settings - System tab - Memory icon - Main tab*.

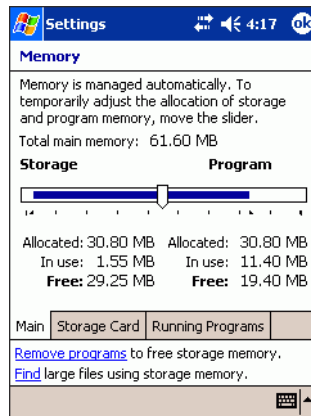


Figure 3-36. Memory Window - Main Tab

2. To adjust RAM allocation move the slider to allocate more memory for programs or storage. If you don't have enough space for a file, increase the amount of storage memory. If your terminal is running slowly, try increasing the amount of program memory.
3. Tap **ok**.

Note: *Resetting your terminal can make additional storage or program memory available. If you continue to experience memory problems, reset your terminal.*

Programs supplied with the terminal are located in ROM and remain after a hard reset. Programs you install are located in RAM and need to be reinstalled after a hard reset. If you have trouble reinstalling programs, adjust RAM allocation.

Storage Card

The *Storage Card* tab displays how much memory is available in the terminal's partitions.

1. Tap *Start* - *Settings* - *System* tab - *Memory* icon - *Storage Card* tab.



Figure 3-37. Memory Window - Storage Card Tab

2. Tap the drop-down list and then the name of the partition whose information you want to view.
3. Tap **ok**.



Running Programs

The *Running Programs* tab displays the list of currently active programs.

1. Tap *Start* - *Settings* - *System* tab - *Memory* icon - *Running Programs* tab.

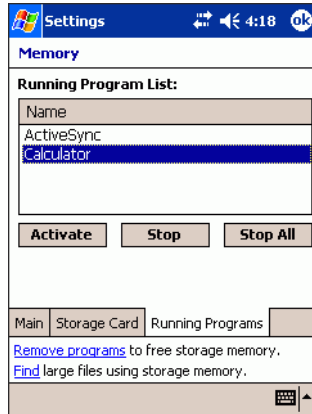


Figure 3-38. Memory Window - Running Programs Tab

The *Running Program List*: lists all running (active) programs.

2. To stop an active program, select the program from the *Running Program List*: list and tap **Stop**.
3. To display an active program, select the program from the *Running Program List*: list box and tap **Activate**.
4. To stop all active programs tap **Stop All**.
5. Tap **ok**.

Power

Use the *Power* window to view the status of the main and backup batteries and set power management options.

Battery

To check the main battery and backup battery status:

1. Tap *Start* - *Settings* - *System* tab - *Power* icon - *Battery* tab.

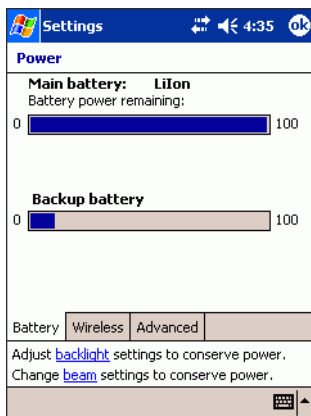
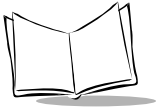


Figure 3-39. Power Window - Battery Tab

The *Battery* tab provides general information about battery conditions. The amount of useful operating time remaining varies depending on battery type and how you use the terminal.

2. Tap **ok**.



Wireless

To turn the PPT 8866 terminal's bluetooth wireless capabilities on and off:

1. Tap *Start* - *Settings* - *System* tab - *Power* icon - *Wireless* tab.

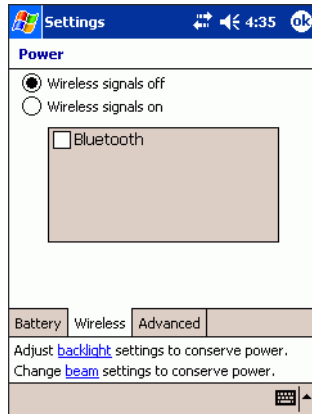


Figure 3-40. Power Window - Wireless Tab

2. In the list box, select the wireless device check box.
3. Select *Wireless signals off* radio button or *Wireless signals on* radio button.
4. Tap **ok**.

Advanced

You can select options for turning off the terminal to conserve battery power. To conserve the most power, select the option to turn off the device after 3 minutes or less.

1. Tap *Start - Settings - System tab - Power icon - Advanced tab*.

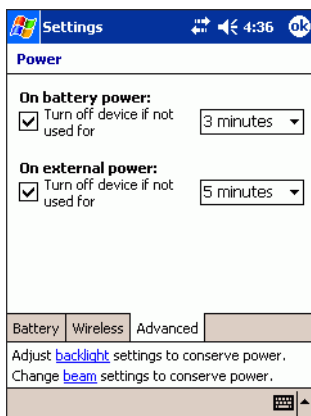


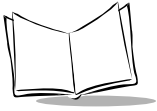
Figure 3-41. Power Window - Advanced Tab

2. Select *On battery power: Turn off device if not used for* check box.
3. Select time value from the drop-down list.
4. Select *On external power: Turn off device if not used for* check box.
5. Select time value from the drop-down list.
6. Tap **ok**.

Optimizing Battery Life

You want your batteries to last as long as possible, especially when you're on the road. Under normal conditions, you can get many hours of use from a single charge. Here are a few tips to help you get the most of the battery:

- Use external power whenever possible, especially when:
 - Using the backlight.
 - Connecting to a host computer.
 - Using accessories.



- Set the terminal to turn off when idle. While on battery power, the terminal automatically turns off, or suspends operation, if you don't touched the keyboard or used the stylus for three minutes. Maximize battery life by shortening this time.
- Turn off sounds you don't need. By default, the terminal produces sounds in response to a number of events, such as warnings, appointments, and key presses. To optimize battery life, turn off any sounds you don't need. See [Sounds & Notifications](#) on page 3-22 for instructions.

Note: *When batteries are low, a battery icon appears in the Navigation bar.*
See [Status Icons](#) on page 2-13 for more information.

Regional Settings

With regional settings, you can change the way the terminal displays dates, times, currency amounts, large numbers, and numbers with decimal fractions. You can also choose the metric or U.S. system of measurement.

You can also choose from a large number of input locales. When you switch to another input locale, some programs offer special features, such as font characters or spell checkers designed for different languages.

1. Tap *Start - Settings - System tab - Regional Settings icon - Region tab*.

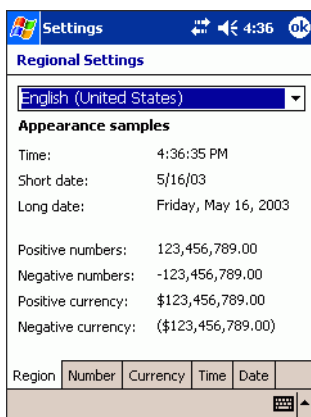
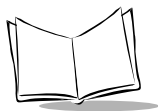


Figure 3-42. Regional Settings Window - Region Tab

2. From the drop-down list, select the country in which you are currently located.



3. Select the *Number* tab.

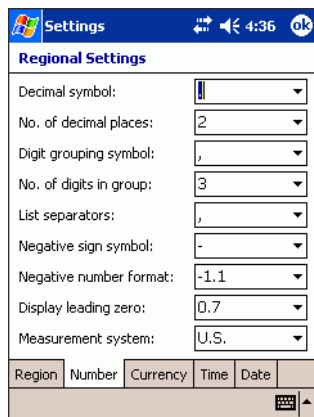


Figure 3-43. Regional Settings Window - Number Tab

4. Select the desired options. The characteristics available are determined by the region selected on the *Region* tab.
5. Select the *Currency* tab.

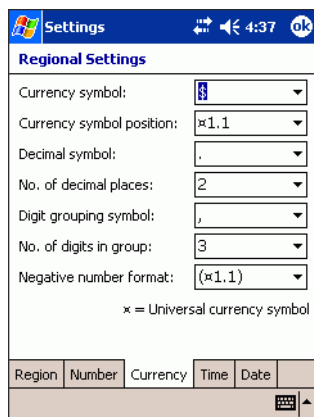


Figure 3-44. Regional Settings Window - Currency Tab

6. Select the desired options. The characteristics available are determined by the region selected on the *Regional* tab.

7. Select the *Time* tab.

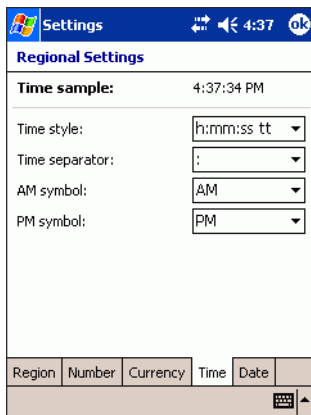


Figure 3-45. Regional Settings Window - Time Tab

8. Select the desired options. The characteristics available are determined by the region selected on the *Region* tab.
9. Select the *Date* tab.

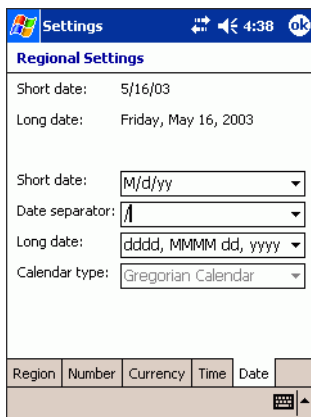
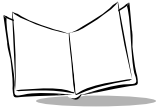


Figure 3-46. Regional Settings Window - Date Tab

10. Select the desired options. The characteristics available are determined by the region selected on the *Region* tab.
11. Tap **ok**.



Remove Programs

Use the *Remove Programs* window to remove programs that were loaded onto the terminal:

1. Tap *Start - Settings - System tab - Remove Programs* icon.

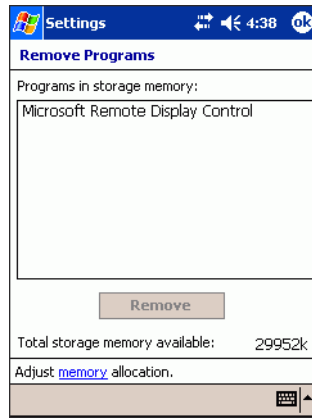


Figure 3-47. Remove Programs Window

2. From the *Programs in storage memory:* list box, select the program you want to remove.
3. Tap **Remove**.

Note: *You can only remove programs that you have installed in RAM.*

4. Tap **ok**.

Screen

Use the *Screen* window to align the screen and to enable ClearType fonts.

1. Tap *Start* - *Settings* - *System* tab - *Screen* icon.

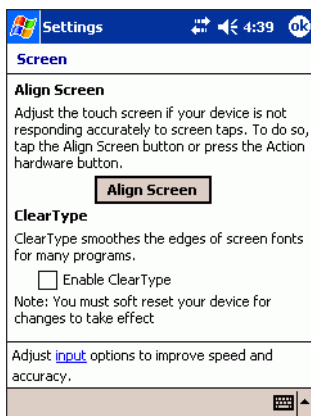


Figure 3-48. Screen Window

2. Tap **Align Screen**.
3. The *align screen* appears. Tap each target with the stylus and following the on-screen messages.
4. Select the **Enable ClearType** check box to enable easier reading of text in programs that support ClearType.
5. Tap **ok**.



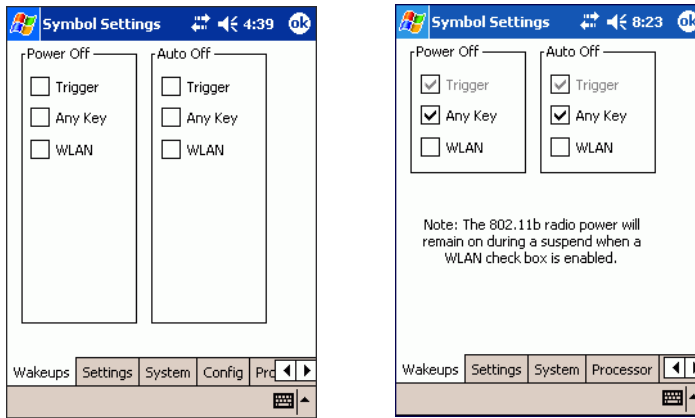
Symbol Settings

Use the *Symbol Settings* window to set specific settings for the terminal.

Wakeups

The terminal can be configured to wakeup from sleep mode.

1. Tap **Start** - **Settings** - **System** tab - **Symbol Settings** icon - **Wakeups** tab.



PPT 8846 and 8866 Only

Figure 3-49. Symbol Settings Window - Wakeups Tab

1. Select the *Trigger*, *Any Key* and/or *WLAN* check box in the *Power Off* or *Auto Off* list box. See [Table 3-6](#) for a list of wakeup conditions settings.
2. Tap **ok**.

Note: All wakeup condition settings are not retained after a hard reset. After a hard reset, wakeup only occurs with the Power button. However, all settings are maintained after a soft reset.

Table 3-6. Wakeup Conditions

Status	Description	Action	Conditions for wakeup
Power Off	When the terminal goes into sleep mode by pressing the Power button, these actions wake the terminal up.	Trigger	Trigger button is pressed.
		Any Key	Any key on the keypad is pressed.
		WLAN	Not supported. See Note.
Auto Off	When the terminal goes into sleep mode by an automatic power-off function, these actions wake the terminal up.	Trigger	Trigger button is pressed.
		Any Key	Any key on the keypad is pressed.
		WLAN	Not supported. See Note.
Note: When the terminal suspends it will not resume based on any type of WLAN activity. Power to the radio remains on when the terminal is suspended. Upon a resume the reassociation to an access point (AP) is quicker since the radio drivers do not need to be reloaded.			

Settings

Use the *Settings* tab to control power to the external connector and decode beep volume.



1. Tap *Start* - *Settings* - *System* tab - *Symbol Settings* icon - *Settings* tab.

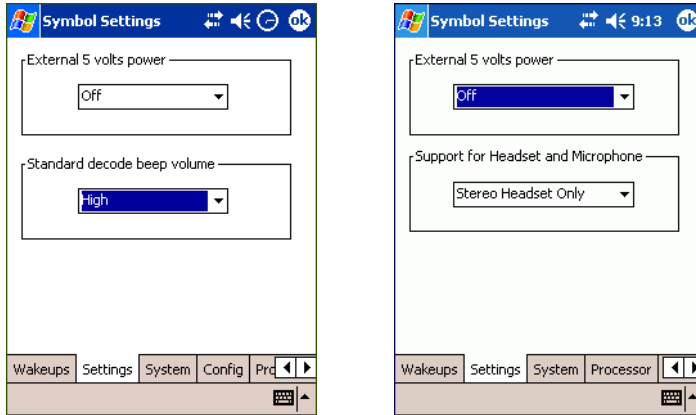


Figure 3-50. Symbol Settings Window - Settings Tab

2. From the *External 5 volts power* drop-down list select the appropriate options to control power to the external connector. The settings listed in [Table 3-7](#) can be selected from the *External 5 volts power* drop-down list.

Table 3-7. External 5 Volts Power Settings

Setting	Description
Off	5V is not supplied to the serial port.
Active On	The terminal outputs 5V while the serial port is open (by an application).
Always On	5V is always available at the serial port
The default setting is Off after a hard reset. The selected setting is maintained after soft reset.	

3. From the *Standard decode beep volume* drop-down list, select the appropriate volume setting.
4. Tap **ok**.

System

The *System* tab displays terminal system data.

1. Tap *Start* - *Settings* - *System* tab - *Symbol Settings* icon - *System* tab.

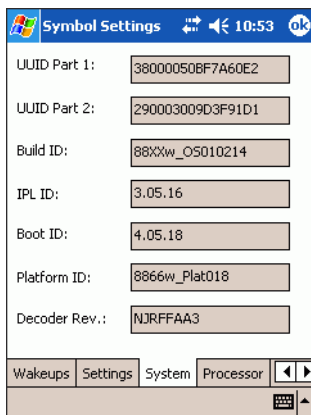
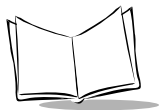


Figure 3-51. Symbol Setting Window - System Tab

2. In the *System* tab you can view the system data listed in [Table 3-8](#).

Table 3-8. System Tab Data

Item	Description	Format
UUID	Inherent value of built-in flash ROM. Part 1: Flash ROM of data bus high order word. Part 2: Flash ROM of data bus low order word.	XXXXXXXXXXXXXXXXXX (where X is an alphanumeric character)
Build ID	Control version of when OS image is built.	X.XX.XXXXXX (where X is an alphanumeric character)
IPL ID	Version of IPL.	X.XX.XX (where X is an alphanumeric character)
Boot ID	Version of Boot.	X.XX.XX (where X is an alphanumeric character)
Platform ID	Version of Platform.	88XXw_OSXXXXXX (where X is an alphanumeric character)
Decoder Rev	Version of scan decoder.	XXXXXXXX (where X is an alphanumeric character)



3. Tap **ok**.

Processor

The *Process* tab controls the speed at which the processor is running. It can operate at either 400 MHz or 300 MHz.

Note: *Older versions allow changing the processor speed but the bus speed is set to 100 MHz. Newer versions allow changing the bus speed for the 400 MHz CPU speed.*

1. Tap *Start - Settings - System tab - Symbol Settings icon - Processor tab*.

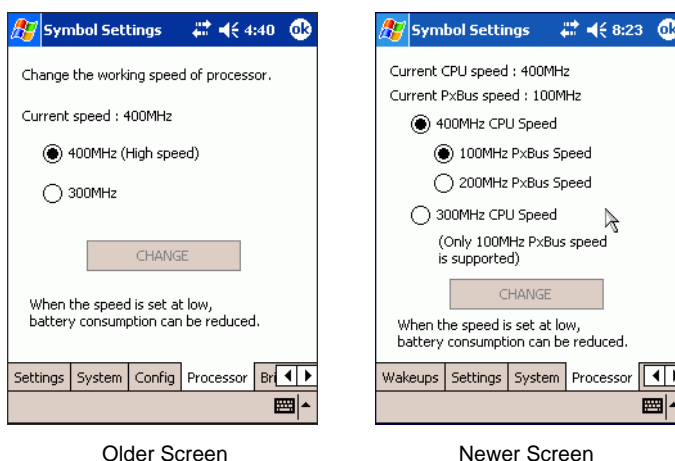
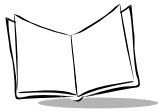


Figure 3-52. Symbol Settings Window - Processor Tab

2. Select either the *400 MHz CPU Speed* or *300 MHz CPU Speed* radio button.
If *400 MHz CPU Speed* was selected, select either *100 MHz PxBus Speed* or *200 MHz PxBus Speed*.
3. Tap **CHANGE**.



4. A notification window appears.

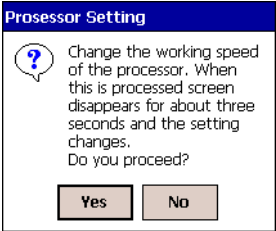


Figure 3-53. Processor Setting Notification Window

5. Tap **Yes** to change the processor speed or **No** to keep the current processor speed.
6. The terminal performs a soft reset.
7. Tap **ok**.

Change Speed Registry Settings

Note: If the terminal displays the older Processor tab screen, see [Figure 3-53](#), the processor speed cannot be set using registry settings.

The processor speed can be changed using the terminal's registry settings in registry file ChangeSpeed.reg.

```
~~~~~  
[HKEY_LOCAL_MACHINE\SOFTWARE\OST\SysDvr]  
"CpuSpeed"=dword:00000190  
"PxBusSpeed"=dword:00000064  
"ChangeSpeed"=dword:00000000  
"NoCsMsgWindow"=dword:00000000  
~~~~~
```

Note: Do not change the registry key order and format.

Table 3-9. Registry Key Definitions

Setting	Description
CPU Speed	400MHz = dword:00000190 (Default) 300MHz = dword:0000012C

Table 3-9. Registry Key Definitions

Setting	Description
PxBusSpeed	100MHz = dword:00000064 (Default) 200MHz = dword:000000C8 Note: If CPU Speed is set to 300MHz, PxBus can ONLY be set to 100MHz.
ChangeSpeed	If the default values have not been changed or you do not want to persist the non-default settings then the dword should be set to '00000000' If you want to persist the non-default setting the dword should be set to '00000001'. When set to '00000001', then after a cold boot a message window will appear with an option to continue with changing the CPU speed or to cancel the process. The option to select 'OK' or 'Cancel' can be made after the Microsoft Welcome Screen process is completed. Selecting 'OK' will suspend the unit for up to 3 seconds.
NoCsMsgWindow	The No ChangeSpeed Message Window registry is used to prevent the Change Speed message window from appearing after a cold boot. The customer application can now take control of invoking the ChangeSpeed application at the appropriate time after the cold boot instead of relying on the end user to make a selection. Along with setting the NoCsMsgWindow value to '00000001', you will need to remove the ChangeSpeed.Ink command from the ChangeSpeed.cpy copy file. (i.e. remove or comment out the following line from ChangeSpeed.cpy, " <code>platform\ChangeSpeed.Ink > \windows\startup\ChangeSpeed.Ink</code> "). Then the customer application will need to launch ChangeSpeed.exe at the appropriate time.



Brightness

The *Brightness* tab allows you to change the brightness of the backlight.

1. Tap *Start - Settings - System tab - Symbol Settings icon - Brightness* tab.

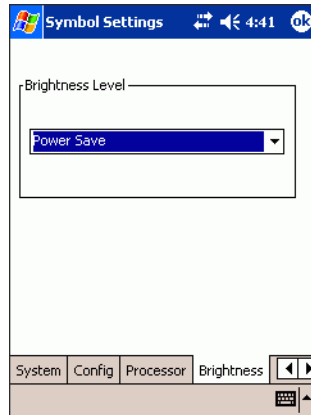


Figure 3-54. Symbol Settings Window - Brightness Tab

2. Select one of the brightness levels listed in [Table 3-10](#) from the *Brightness Level* drop-down list.

Table 3-10. Brightness Level Settings

Brightness	Comment
Power save	Power-saving mode. Default after hard reset.
Low Bright	Slightly dark
Med Bright	Medium
High Bright	Slightly bright
Super Bright	Very bright

Note: Backlight brightness goes to “Power save” automatically when the battery is low, regardless of the setting.

Wireless Adapter Control

Note: This feature is only available on PPT 8846 and PPT 8866 configurations.

This feature can also be controlled by an application via APIs. Refer to the Device Configuration Package (DCP) for the PPT 8800 for more information.

To turn the Spectrum24 wireless radio on or off:

1. Tap *Start - Settings - System tab - Wireless Adapter Control* icon.

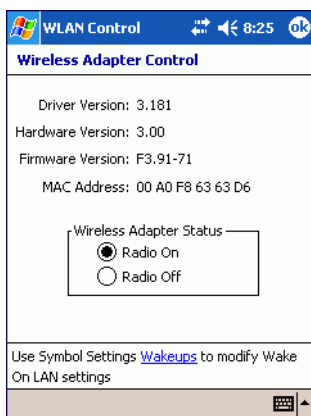
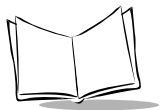
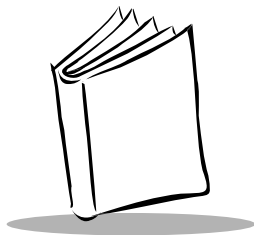


Figure 3-55. Wireless Adapter Control Window

2. Tap the *Radio On* button to turn the wireless radio on.
3. Tap the *Radio Off* button to turn the wireless radio off.



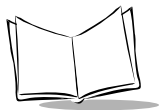


Chapter 4

Communication

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Introduction

Your terminal is capable of communicating with a number of hosts, including development PCs, serial devices, printers, etc. The available accessories serve as essential data communication devices, enabling you to synchronize the information on your terminal with the information on your host device using ActiveSync. With the appropriate accessory and software, the terminal can establish a number of connection types, such as a serial or ethernet connection.

This chapter provides information on installing the appropriate communication software and setting up the appropriate accessory to enable communication between the terminal and the host device.

Installing Communication Software

Below is a list of software applications you need to successfully communicate with the various host devices:

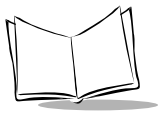
- Microsoft ActiveSync 3.7 or higher
- eConnect.

Installing ActiveSync

Using ActiveSync, you can synchronize the information on your terminal with the information on your host computer. Changes you make on your terminal or host computer appear in both places after you synchronize.

With ActiveSync software you can:

- Work with terminal-compatible host applications on your host computer. ActiveSync replicates data from your terminal so you can view, enter and modify any data stored on your terminal with the host application.
- Synchronize files between your terminal and host computer. Your files are automatically converted to the correct format.
- Back up the data stored on your terminal. Synchronization is a one-step procedure that ensures your data is always safe and up-to-date.
- Copy (rather than synchronize) files between your terminal and host computer.
- Control when synchronization occurs by selecting a synchronization mode. For example, you may synchronize continually while the terminal is connected to the host computer, or only when you select the synchronize command.



- Select the types of information to synchronize, and control how much data is synchronized.

To install ActiveSync on your host computer:

1. Download version 3.7 or higher of the software from <http://www.microsoft.com>. Refer to the installation and RAS instructions included with the ActiveSync software you download.
2. Set up a partnership between the terminal and host computer through the ActiveSync connection using a serial connection or Universal Cable Cup/USB cable.

Setting up a Partnership

After installation is complete, the ActiveSync Setup Wizard helps you connect your terminal to your host computer, set up a partnership so you can synchronize information between your terminal and host computer, and customize synchronization settings.

1. If the *Get Connected* window does not appear on the host computer, select *Start - Programs - Microsoft ActiveSync*.

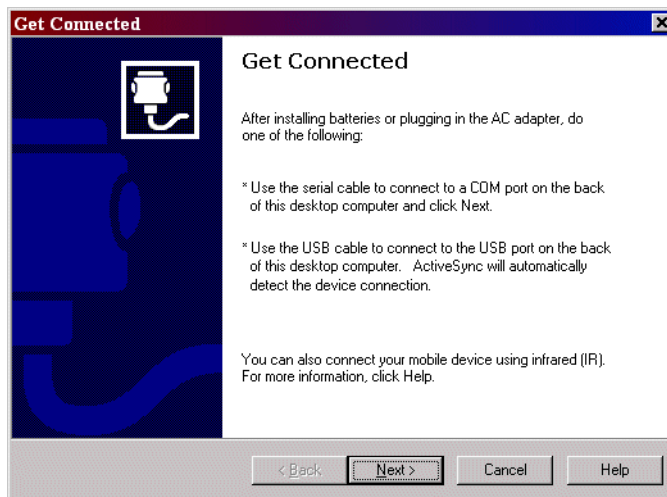


Figure 4-1. Get Connected Window

2. Connect the terminal to the host computer. See [Communication Setup](#) on page 4-9.

3. Select **Next** in the *Getting Connected* window.
4. The host computer and the terminal attempts to synchronize. The *New Partnership* window appears.



Figure 4-2. New Partnership Window



- Click the Yes radio button and then select **Next**. The *New Partnership/Select Number of Partnerships* window appears.

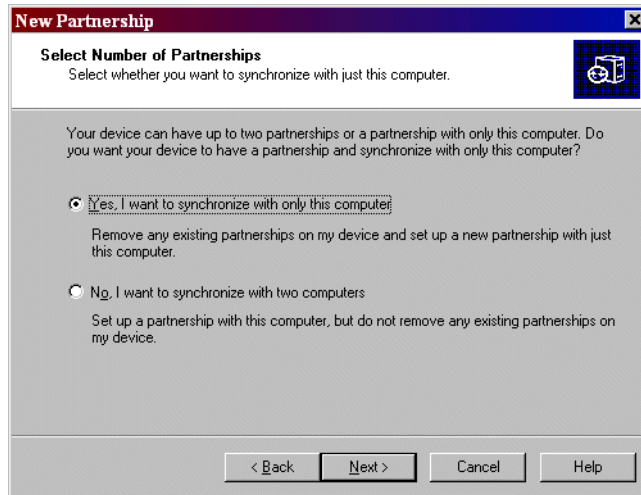


Figure 4-3. Select Number of Partnerships

- Select **Next**. The *New Partnership/Select Synchronization Settings* window appears.

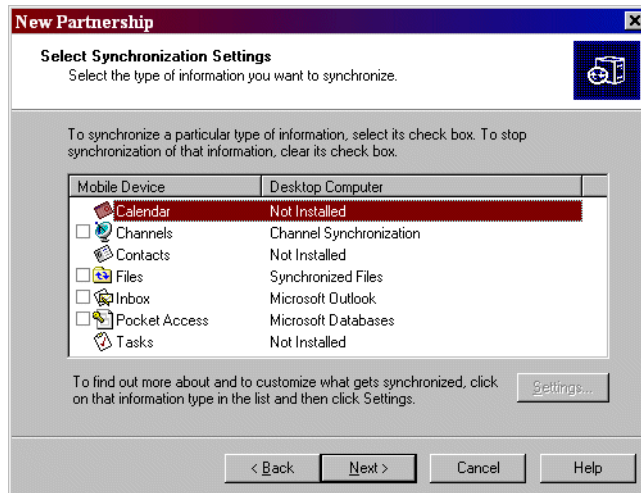


Figure 4-4. Select Synchronization Settings Window

7. To synchronize a particular type of information, select its check box. To stop synchronization of that information, clear its check box.
8. Select **Next**.

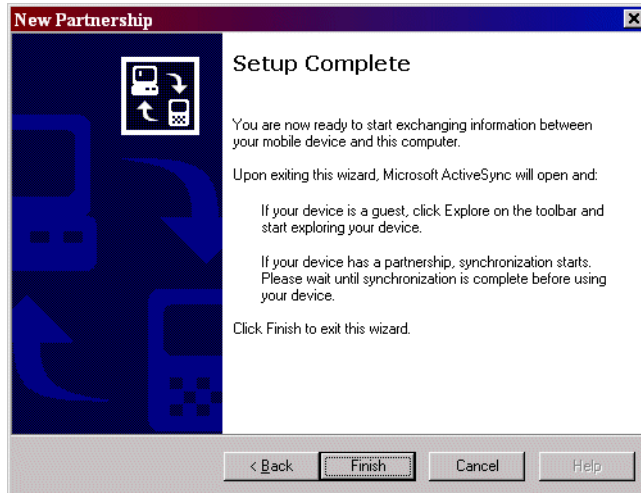


Figure 4-5. Setup Complete Window

9. Select **Finish**. The *Microsoft ActiveSync* window appears.

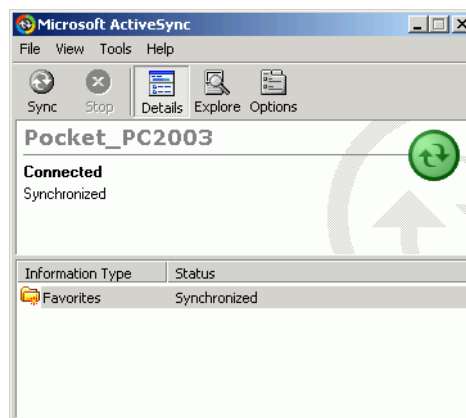
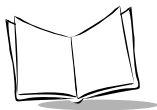


Figure 4-6. ActiveSync Connected Window



During the first synchronization, information stored on your host computer is copied to your terminal. When the copy is complete and all data is synchronized, you can disconnect your terminal from your host computer.

Note: *You must perform your first ActiveSync operation with a local, direct connection.*

To retain partnerships after a hard reset, capture partnership registry information in a .reg file and save it in the Flash File System. See the Windows CE Help File for Symbol Terminals for details.

For more information about using ActiveSync, start ActiveSync on your host computer, then see ActiveSync Help.

Installing eConnect

eConnect is a control panel applet you may install on a terminal; it automates the launch of a ethernet connection and applications, such as ActiveSync or Internet Explorer.

Note: *eConnect is needed only when establishing a connection using the the Four-Slot Ethernet cradle.*

To install eConnect, download it from <http://devzone.symbol.com>. Follow the installation instructions included to install the software on your terminal.

Communication Setup

The terminal can communicate with the host computer to exchange data using the following accessories:

- Serial Charging Cable (through a serial connection)
- Universal Cable Cup (through a USB/serial connection)
- Single-Slot Serial Cradle (through a serial connection)
- Four -Slot Ethernet Cradle (through an Ethernet connection).

For each accessory, you need to follow instructions on configuring your host computer, setting up the connection between the terminal and the host computer, and configuring the terminal.

Using the Serial Charging Cable

1. Ensure that ActiveSync was installed on the host computer and a partnership was created. See [Installing ActiveSync](#) on page 4-3 and [Setting up a Partnership](#) on page 4-4.
2. Start ActiveSync on the host computer, if it is not running. To start, select *Start - Programs - Microsoft ActiveSync*. The *Microsoft ActiveSync* window appears.

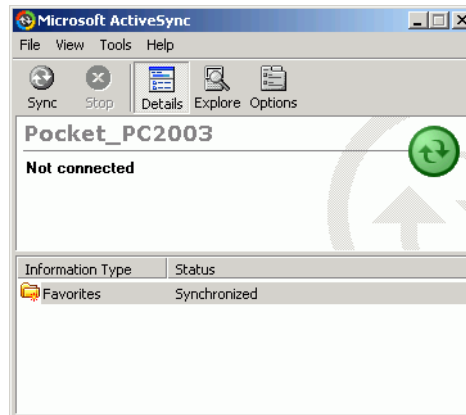
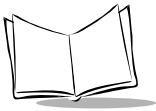


Figure 4-7. ActiveSync - Not Connected



Note: Every terminal should have a unique device name. Never try to synchronize more than one terminal to the same name. See [Device ID](#) on page 3-27 for instructions on changing the device name.

3. Connect the Serial Charging Cable to your terminal and host computer as shown in [Figure 4-8](#).

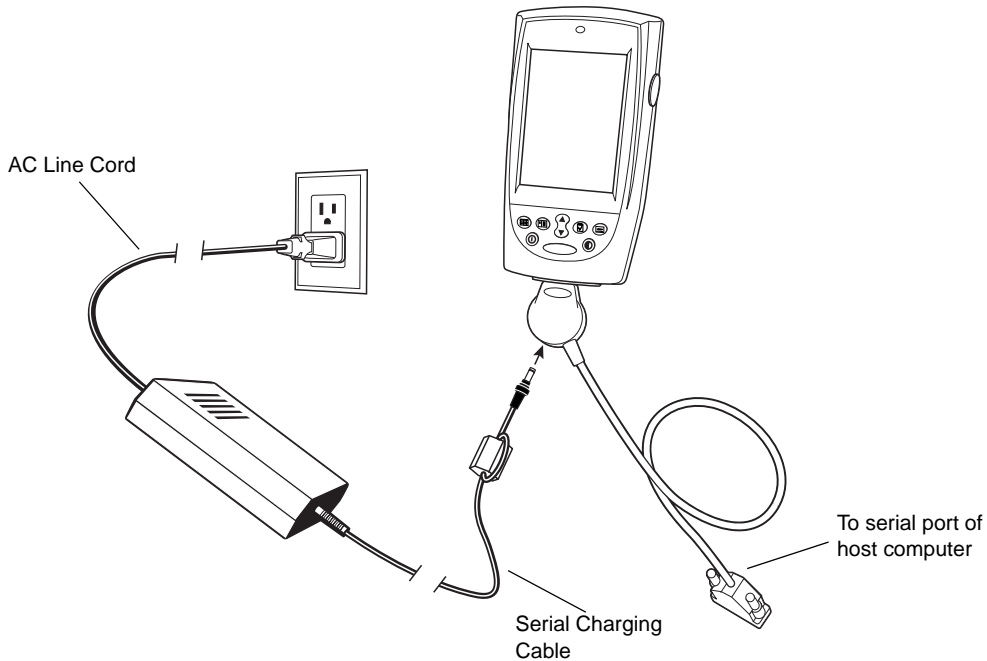


Figure 4-8. Connecting the Serial Charging Cable

Note: The Serial Charging Cable requires a dedicated port. It cannot share a port with an internal modem or other device. If you are unsure about the location of the serial port on your computer, refer to the user's manual supplied with the computer.

4. Upon connection, synchronization occurs automatically.

Using the Single-Slot Serial Cradles

1. Ensure that ActiveSync was installed on the host computer and a partnership was created. See [Installing ActiveSync](#) on page 4-3 and [Setting up a Partnership](#) on page 4-4.
2. Start ActiveSync on the host computer, if it is not running. To start, select *Start - Programs - Microsoft ActiveSync*. The *Microsoft ActiveSync* window appears.

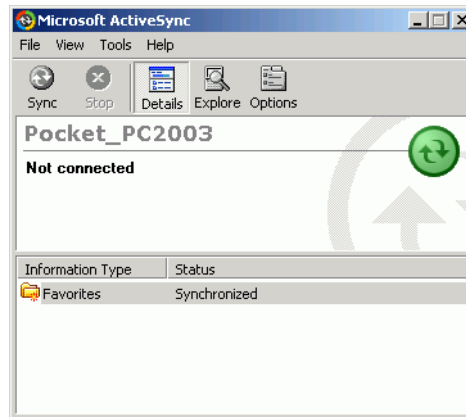
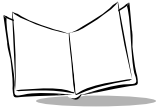


Figure 4-9. ActiveSync - Not Connected

Note: Every terminal should have a unique device name. Never try to synchronize more than one terminal to the same name. See [Device ID](#) on page 3-27 for instructions on changing the device name.



3. Connect your CRD8800-1000S or CRD8800B-1000S cradle to your host computer as shown in [Figure 4-10](#).

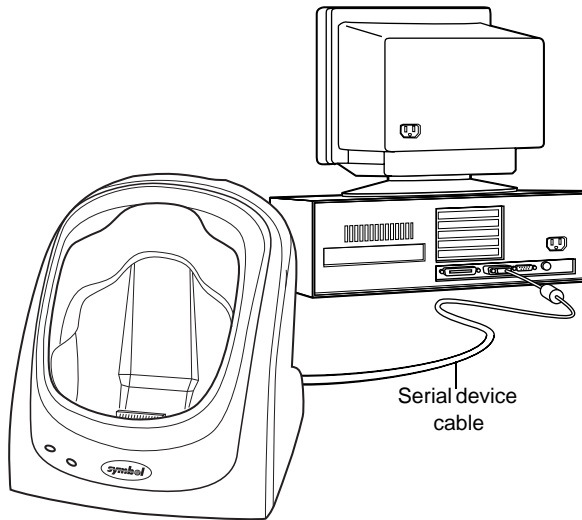


Figure 4-10. Connecting the Cradle to the Host

Note: The cradle requires a dedicated port. It cannot share a port with an internal modem or other device. If you are unsure about the location of the serial port on your host computer, refer to the user's manual supplied with the computer.

4. Turn on the terminal and slide it into the cradle.

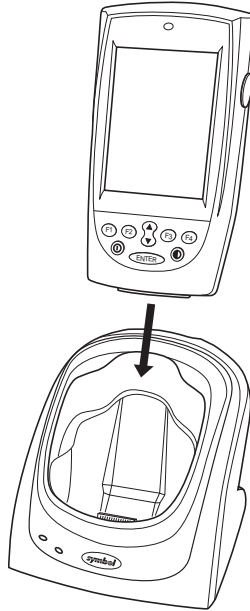
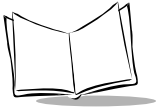


Figure 4-11. Inserting the Terminal in the Cradle

5. Upon connection, synchronization occurs automatically.



Using a Four-Slot Ethernet Cradle

The CRD8800-4000E Four-Slot Ethernet Cradle allows communication between terminals and their associated host computers connected to an Ethernet network using ActiveSync and eConnect. The CRD8800-4000E must be connected to an Ethernet network which is connected to the same network as the host computers, or an Ethernet network connected to the larger Internet via an Internet gateway. The cradle uses one of two configurations to accomplish this: *DHCP mode* or *Static mode*.

ActiveSync only allows one terminal to connect to a host at a time. eConnect is a required control panel applet that is installed on the terminal and allows ActiveSync, or any custom synchronization application, to be launched when the terminal is inserted into the cradle. eConnect can also be set up to start a TCP/IP connection with the cradle, allowing any IP-based application to communicate through the cradle. When the terminals are inserted in the cradle, the cradle appears to be a direct-connect PPP service.

The cradle must be properly configured for use with the terminal. The configuration steps include:

- Connecting the cradle to a network
- Configuring the cradle
- Configuring the host computer
- Configuring the terminal.

DHCP Mode

1 DHCP Address Mode

When using DHCP mode, the cradle acquires its IP address dynamically from the DHCP server. There must be a DHCP server or a DHCP relay agent on the same subnet as the CRD8800-4000E with IP addresses, a gateway IP address, at least one DNS address, at least one WINS server address, and a subnet mask for the unit to be automatically configured. The cradle acquires one DHCP address from the DHCP server.

6 DHCP Address Mode

The 6 DHCP address mode is the cradle's default mode. When using this mode, the cradle acquires 6 IP addresses dynamically from the DHCP server: one for the cradle, one for each of the 4 slots, and one for the expansion slot.

In this mode, each slot has its own IP address and may be directly accessed by the network. On power-up, the 6 IP addresses are acquired. Periodically, the lease times are checked and renewed as required. If the renewal request is NAKed by the server, the cradle

enters *Panic* mode and re-boots. If the cradle receives no response from the server and is unable to re-bind, it enters *Panic* mode and re-boots.

Caution

In 6 DHCP address mode, the cradle must acquire 6 addresses from the DHCP server by requesting addresses with different requestor IDs. Some DHCP servers use the MAC address instead and with those cradles the cradle only receives one address and will not operate. This situation has occurred on some Novel servers. To remedy the situation, use static mode.

Static Mode

If there is no DHCP server on the network, the cradle must be manually configured with IP addresses and other network-related information.

Connecting the Cradle to a Network

To set up network communications:

1. Ensure there is a DHCP server accessible to the cradle on the subnet.
2. Connect one end of a standard 10 Base-T network cable to the connector labelled *Host* on the back of the cradle. Connect the other end of the cable to a subnet hub.

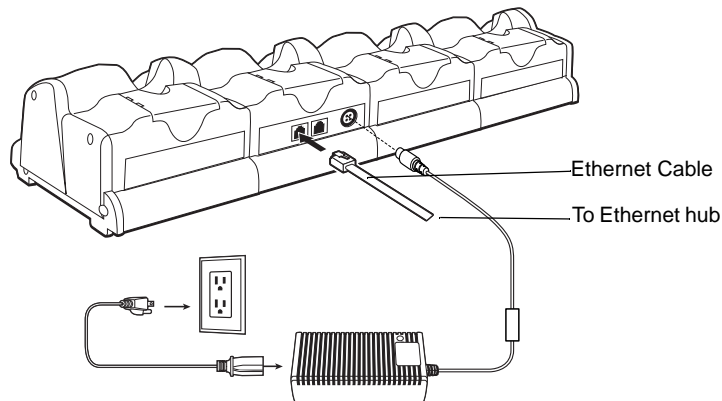


Figure 4-12. Connecting the Four-Slot Ethernet Cradle



3. Configure the cradle. See [Configuring the Cradle for DHCP Address Mode](#) on page 4-16 or [Configuring the Cradle for Static Mode](#) on page 4-18.
4. Power up the cradle; the cradle performs a power-up sequence, then attempts to collect its network parameters from the DHCP server. While collecting network parameters, all LEDs flash green. Once configuration completes, all LEDs shut off.

If configuration of the cradle from the DHCP server fails, all LEDs flash red. The cradle retries the DHCP request every 10 minutes.

Configuring the Cradle for DHCP Address Mode

1. Start a terminal emulation session for the cradle:
 - a. Connect the modular end of cable (p/n 170013-000) and a null modem adapter between the expansion port of the cradle and the COM port on a host computer.

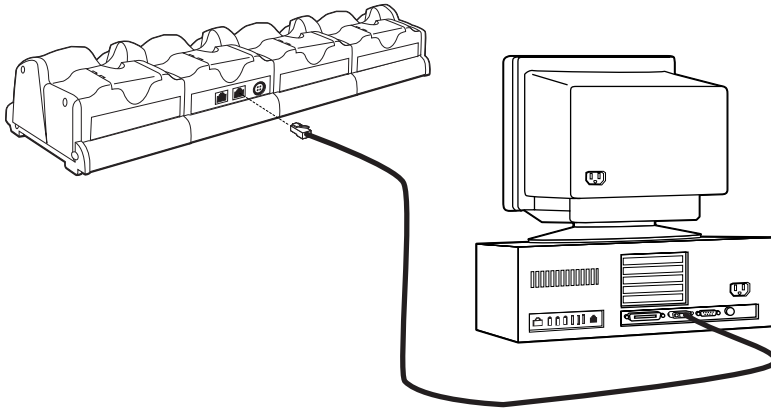


Figure 4-13. Connecting the Four-Slot Ethernet Cradle to Host Computer

- b. Start a terminal emulation session on the host computer. Use standard terminal emulator software, such as Pro-Comm™ or Hyperterminal™. Use the following terminal emulation settings: 115200 bps, 8N1, XON/XOFF flow control, ASCII file transfer protocol.
 - c. Power on the cradle. Before the power up LED sequence begins, on the host computer press “a” from the terminal program to load the Cradle Utilities

configuration interface. The *Cradle Utilities Version* screen appears on the host computer:

```

Cradle Utilities Version x.xx
Firmware Datecode: xxxxxxxx
1: Public network settings
2: Advanced settings
3: PPP settings
4: Private network settings
5: Firmware Download
Select a submenu OR:
Q: Discard changes and restart
F: Save changes and restart

```

2. Press 1 to display the *Public network settings* menu:

```

Public network settings
1: Static Mode: 1
2: NAPT Mode: 1
The following settings are only used when Static
mode is 1
3: Cradle IP Address: 0.0.0.0
4: Router (Gateway) IP Address: 0.0.0.0
5: 1st DNS IP Address: 0.0.0.0
6: 2nd DNS IP Address: 0.0.0.0
7: 1st WINS IP Address: 0.0.0.0
8: 2nd WINS IP Address: 0.0.0.0
9: Subnet Mask: 0.0.0.0
The following settings are only used when
NAPT mode is 0 and Static mode is 1
A: Terminal 1 IP Address: 0.0.0.0
B: Terminal 2 IP Address: 0.0.0.0
C: Terminal 3 IP Address: 0.0.0.0
D: Terminal 4 IP Address: 0.0.0.0
E: Expansion Port IP Address: 0.0.0.0

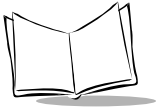
```

3. From the *Public network settings* menu:
 - a. Press 1 to set the Static Mode. The Static Mode selection appears:

```

Enter '1' to enable Static mode
Enter '0' to disable Static mode
Enter new value:

```



- b. Press 1 to enable or 0 to disable Static mode. The *Public network settings* menu re-appears with the new Static Mode value.
- c. Press 2 to set the NAPT Mode. The NAPT Mode selection appears:

Enter '1' to enable NAPT mode
Enter '0' to disable NAPT mode
Enter new value:

- d. Press 1 to enable NAPT or 0 to disable NAPT mode. The *Public network settings* menu re-appears with the new NAPT Mode value.
- e. Set the DHCP Address Mode as follows:

For the 6 DHCP Address Mode: Set NAPT Mode to 0 (see step c).

When Static Mode and NAPT Mode are both set to 0, the cradle acquires 6 IP addresses from the DHCP server.

For the 1 DHCP Address NAPT Mode: Set NAPT Mode to 1 (see step c).

When NAPT Mode is set to 1, the cradle uses 5 private NAPT addresses (192.168.1.1 through 192.168.1.5 by default; the network does not see these addresses).

- f. Press Q to return to the main *Cradle Utilities* menu.
- g. Press F to write these values to flash memory and reset the cradle.

Configuring the Cradle for Static Mode

- 1. Start a cradle terminal emulation session:
 - a. Connect the modular end of the cable (p/n 170013-000) and a null modem adapter between the expansion port of the cradle and a COM port on a host computer. See [Figure 4-13 on page 4-16](#).
 - b. Start a terminal emulation session on the host computer. Use standard terminal emulator software, such as Pro-Comm™ or Hyperterminal™. Use the following terminal emulation settings: 115200 bps, 8N1, XON/XOFF flow control, ASCII file transfer protocol.
 - c. Power on the cradle. Before the power up LED sequence begins, on the host computer press “a” from the terminal program to load the Cradle Utilities

configuration interface. The *Cradle Utilities Version* screen appears on the host computer:

```

Cradle Utilities Version x.xx
Firmware Datecode: xxxxxxxx
1: Public network settings
2: Advanced settings
3: PPP settings
4: Private network settings
5: Firmware Download
Select a submenu OR:
Q: Discard changes and restart
F: Save changes and restart

```

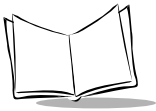
2. Press 1 to display the *Public Network Settings* menu:

```

Public Network Settings
1: Static Mode: 0
2: NAPT Mode: 1
The following settings are only used when Static
mode is 1
3: Cradle IP Address: 0.0.0.0
4: Router (Gateway) IP Address: 0.0.0.0
5: 1st DNS IP Address: 0.0.0.0
6: 2nd DNS IP Address: 0.0.0.0
7: 1st WINS IP Address: 0.0.0.0
8: 2nd WINS IP Address: 0.0.0.0
9: Subnet Mask: 0.0.0.0
The following settings are only used when
NAPT mode is 0 and Static mode is 1
A: Terminal 1 IP Address: 0.0.0.0
B: Terminal 2 IP Address: 0.0.0.0
C: Terminal 3 IP Address: 0.0.0.0
D: Terminal 4 IP Address: 0.0.0.0
E: Expansion Port IP Address: 0.0.0.0

```

3. From the *Public network settings* menu:
 - a. Set Static Mode to 1 (see [page 4-18](#)).
 - b. Set NAPT Mode to 0 (see [page 4-18](#)).
 - c. Select 3 to access the *set cradle IP address* prompt.
Enter the new cradle IP Address at the prompt.
 - d. Select 4 to access the *set Router IP address* prompt.



Enter the new internet gateway IP address at the prompt.

- e. Select 5 to access the *first set the DNS IP addresses* prompt.

Enter the first new DNS IP address at the prompt.

- f. Select 6 to access the *second set the DNS IP addresses* prompt.

Enter the second new DNS IP address at the prompt.

- g. Select 7 to access the *set the first WINS IP addresses* prompt. This is required for ActiveSync to function properly.

Enter the first new WINS IP address at the prompt.

- h. Select 8 to access the *set the second WINS IP addresses* prompt.

Enter the second new WINS IP address at the prompt.

- i. Select 9 to access the *set the correct subnet mask IP addresses* prompt.

Enter the new subnet mask IP address at the prompt.

- j. Select A to access the *Terminal 1 IP addresses* prompt.

Enter the new Terminal 1, IP address at the prompt.

- k. Select B to access the *Terminal 2 IP addresses* prompt.

Enter the new Terminal 2, IP address at the prompt.

- l. Select C to access the *Terminal 3 IP addresses* prompt.

Enter the new Terminal 3, IP address at the prompt.

- m. Select D to access the *Terminal 4 IP addresses* prompt.

Enter the new Terminal 4, IP address at the prompt.

- 4. Select Q to return to the main *Cradle Utilities* menu.

- 5. Select F to reset cradle and write values to flash memory.

Network Address Translation (NAPT)

In both DHCP and Static mode, the cradle assigns private IP addresses to each terminal and performs Network Address Translation (NAPT) on all TCP/IP and UDP/IP packets as they transmit through the cradle between the outside network and the cradle's private network. The terminals are assigned private addresses specified in options A through E in the *Public network setting* menu.

The cradle modifies one IP address and port number pair inside a TCP/IP and UDP/IP packet header. Those packets going to the outside network have their source address translated to the IP address of the cradle and their source port changed to a unique port number associated with the cradle slot from which it came. Conversely, packets designated to the cradle's private network have their destination IP address and port number mapped to the equivalent private network IP address and port number. The differences in the port numbers distinguish between packets for different slots in the cradle. The benefit of both IP address and port translation is that multiple slots can simultaneously share the one network IP address of the cradle.

Accessing the outside network with the CRD8800-4000E is not the same as a direct connection to the outside network. When using NAPT, many network services do not function at all. Since NAPT modifies addresses in TCP/IP and UDP/IP headers, it is insufficient for network services that embed IP addresses inside packet data. Also, the CRD 8800-4000E assumes that terminals sending data with one TCP or UDP source port expects to receive replies on the same port number, but some network services may reply with data over a range of ports. These network services are unusable with the CRD8800-4000E. Also, some services listen to incoming requests from the network. Since port numbers are usually fixed for a given service, no terminals can be set up as listeners.

Note: *Turn off NAPT mode before using ActiveSync.*

Inter-Connecting Cradles

Up to four 4-slot serial cradles (CRD8800-4000S) may be inter-connected (daisy-chained) with the CRD8800-4000E using an RJ-45/10 to RJ-45/10 inter-cradle cable (p/n 70349-001). This cable is required for each cradle to be connected.

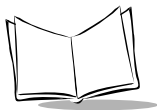
WARNING

Each cradle must have its own power supply. Any other method of power hookup is unsafe.

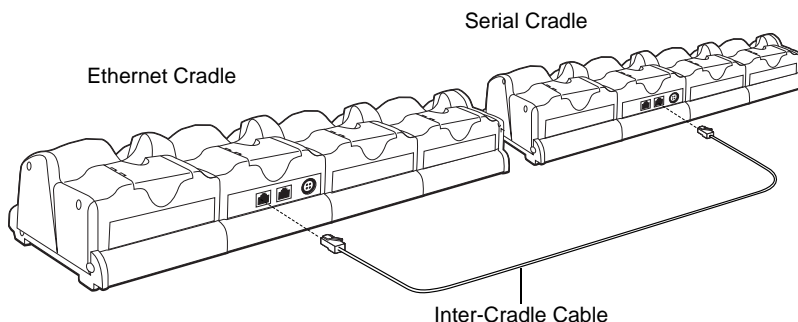
To inter-connect cradles:

1. Connect the power supply to the second 4-slot cradle.

Note: *You must use a 8 VDC 5 A power supply on the serial cradle being connected to the ethernet cradle.*



2. Plug one end of the inter-cradle cable into the Expansion Connector modular jack labeled *EXP* on the back of the first cradle.



1. Plug the other end of the inter-cradle cable into the modular jack labeled *Host* on the back of the second serial cradle.
2. Repeat these steps for any additional 4-slot serial cradles you want to connect.

Note: *This only works with the CRD8800-4000S 4-Slot Serial cradle. It does not work with the single-slot cradle.*

Configuration of the Host Computer

The host computer that you intend to synchronize with the terminal must be setup with the appropriate communication software and connection settings. This guide assumes that you are using Microsoft® ActiveSync software on both the terminal and the host computer. To configure the host computer:

1. Download and install ActiveSync. See [Installing ActiveSync](#) on page 4-3.
2. Configure the connection settings. The host computer must be configured for TCP/IP network communications.
 - a. Click on the ActiveSync icon from the system tray
 - b. Tap *File - Connection settings*.
 - c. In the *Connection settings* dialog box, select the *Allow Network (Ethernet) and Remote Access Service (RAS) server connection with this desktop computer* option.
You may have other options selected, for example, *Allow serial cable or infrared connection to this COM port*.
 - d. Click **OK**.

Note: Before communicating through an ethernet connection, you must create a partnership between your terminal and your host computer. See [Setting up a Partnership](#) on page 4-4 for detailed instructions.

Configuration of the Terminal

When you insert a terminal into the cradle, the cradle provides a direct-connect RAS service. You need to configure each terminal for use with the cradle, just as you would configure any remote client to connect to an Internet Service Provider (ISP). To configure the terminal install eConnect. See [Installing eConnect](#) on page 4-8.

1. On the terminal, tap *Start - Settings - System - eConnect* and ensure the following settings are made:

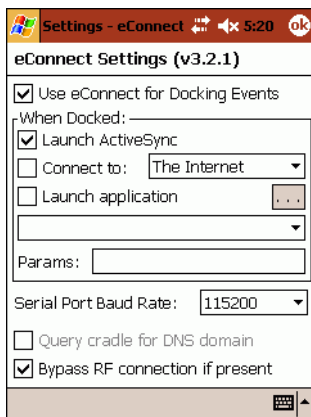
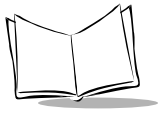


Figure 4-1. eConnect Settings Window

2. Tap **OK**.



Communication

To communicate with a host computer over a network:

1. Insert the terminal into the cradle or a slot on an interconnected serial cradle. This initiates the communication between the terminal and the host computer to automatically ActiveSync the terminal. All local slots in the cradle operate simultaneously.

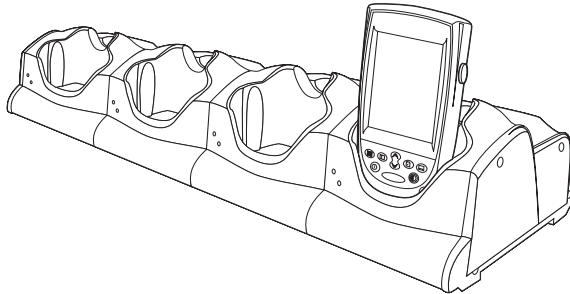


Figure 4-2. Insert Terminal Into the Cradle

2. The cradle's communication LED turns red, then flashes green, indicating that the host computer and terminal are communicating. See [Communication LED Indicator](#) on page 4-25 for other indications.

Note: *If you remove the terminal from the cradle while the LED is flashing green, you disrupt communication and data may be lost. When the terminal finishes communicating, the slot's LED turns solid green until the terminal is removed from the slot.*

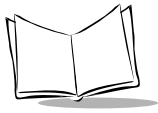
3. On the terminal, a succession of dialog boxes appear, indicating the status of the connection. When successfully connected and synchronized, the status of the host computer is *Connected/Synchronized*.

If the terminal is inserted into an interconnected serial cradle slot while another terminal on the serial cradle chain is communicating with a host computer, the terminal waits (its LED remains red) until the first terminal finishes communicating. Then the slot's LED turns green until the terminal is removed from the slot. To remove the terminal, pull it straight up from the cradle slot.

Communication LED Indicator

Table 4-1. Communication LED Indicator

LED	Indication
Off	Terminal not in cradle; terminal not placed correctly; cradle is not powered.
Solid Red	Terminal is present, but communication has not started.
Flashing Green	Terminal is in the cradle, and communicating with the host computer.
Slow Flashing Red	Error, communication did not start.
Fast Flashing Red	Warning: Terminal inactivity timeout. The terminal did not finish data synchronization or had an open connection for more than 15 minutes. This time is programmable in the cradle flash parameters.
Solid Green	Terminal is present in the slot and communication is complete.
All LEDs Flashing Red	Failed automatic cradle configuration via local DHCP Service.



Using the Universal Cable Cup

1. Ensure that ActiveSync was installed on the host computer and a partnership was created. See [Installing ActiveSync](#) on page 4-3 and [Setting up a Partnership](#) on page 4-4.
2. Start ActiveSync if it is not running on the host computer. To start, select *Start - Programs - Microsoft ActiveSync*. The *Microsoft ActiveSync* window appears.

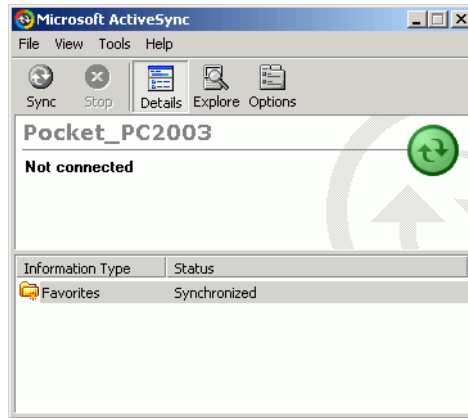


Figure 4-3. ActiveSync - Not Connected

Note: Every terminal should have a unique device name. Never try to synchronize more than one terminal to the same name. See [Device ID](#) on page 3-27 for instructions on changing the device name.

3. Ensure that locking tabs on the cable cup are in the open position (up).
4. Insert the terminal into the cable cup.
5. Press down on the two locking tabs.
6. Pull on the cable cup to ensure that it is securely seated on the terminal.

7. Open the rubber cap covering the serial port.

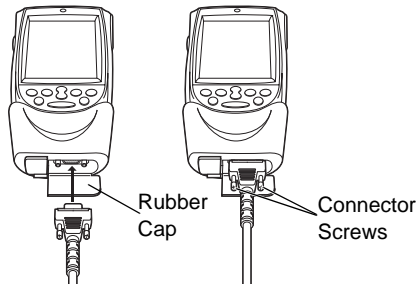


Figure 4-4. Connecting the Communication Cable

8. Connect the cable connector to the serial port.
9. Secure the connector to the cable cup by tightening the two connector screws.
10. Connect the other end of the USB cable to the USB port on your host computer.

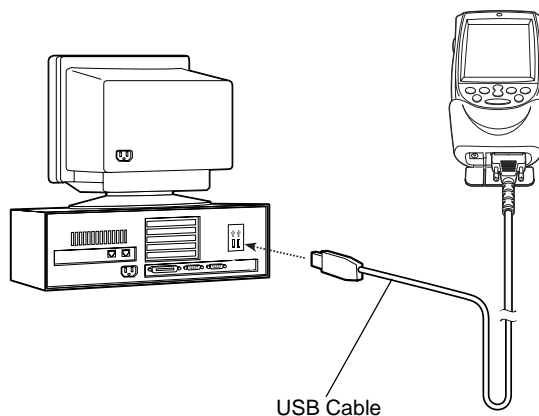
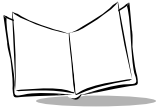


Figure 4-5. Connecting the Cable Cup to Host Computer

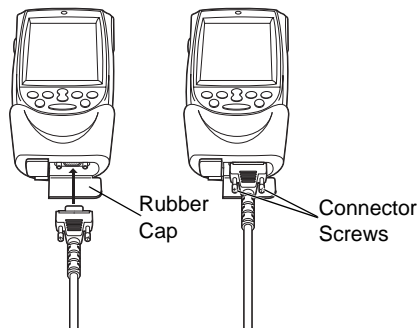
11. Turn on the terminal.
12. Upon connection, synchronization occurs automatically.



Serial Communication

The UCC 8800 Universal Cable Cup provides the ability to connect the terminal to printers and vending machines.

1. Ensure that locking tabs are in the open position (up).
2. Insert the terminal into the cable cup.
3. Press down on the two locking tabs.
4. Pull on the cable cup to ensure that it is securely seated on the terminal.
5. Open the rubber cap covering the serial port.



6. Connect the cable connector to the serial port.
7. Secure the connector to the cable cup by tightening the two connector screws.
8. Connect the other end of the serial cable to the appropriate device.

Connecting to the Internet on a Wireless Network

With a PPT 8846 or PPT 8866 terminal, you can connect to the Internet across a wireless network. To set up a wireless connection:

1. Tap the *Mobile Companion* icon on the task tray. The *Mobile Companion* menu appears.

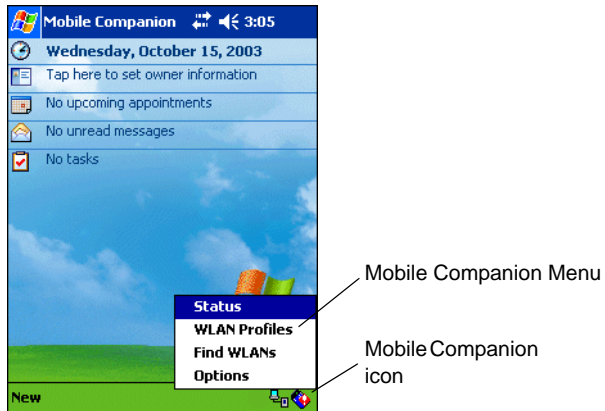


Figure 4-6. Mobile Companion Menu

2. Tap *Find WLANs*. The *Mobile Companion* window appears.

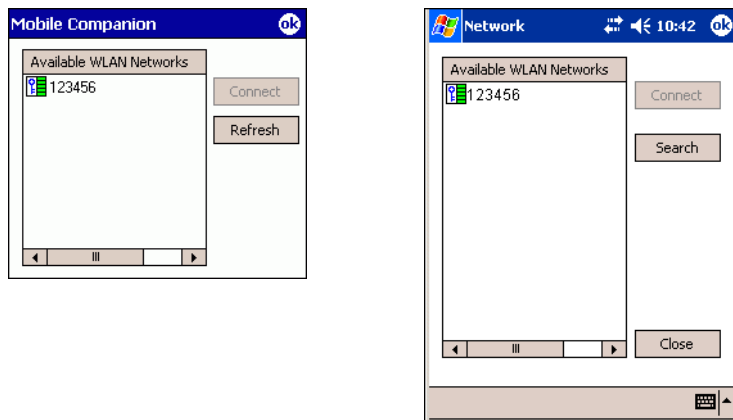


Figure 4-7. Mobile Companion Window



3. The terminal tries to locate Access Points (APs) in the area. When it locates a wireless LAN(s), the ESSID name displays in the *Available WLAN Networks* list.
4. Tap the ESSID name and then tap **Connect**.
5. The Mobile Companion *Mode* tab appears.

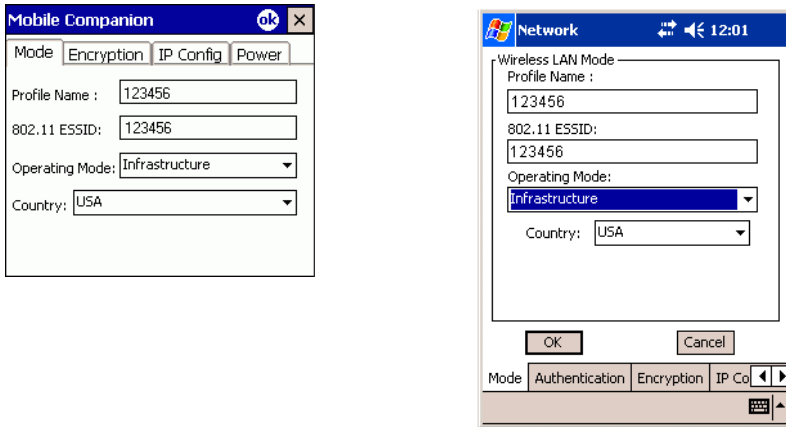


Figure 4-8. Mobile Companion - Mode Tab

6. The profile name and ESSID name appears in the respective fields.
7. Select *Infrastructure* from the *Operating Mode*: drop-down list.

Note: *Mobile Companion 3.9.2 contains an Authentication and Encryption tab. Version 3.9.1 only contains an Encryption tab. Refer to [Chapter 5, Spectrum24 Network Configuration \(V 3.9.1\)](#) for information on Mobile Companion version 3.9.1 settings and to [Chapter 6, Spectrum24 Network Configuration \(V 3.9.2\)](#) for information on Mobile Companion Version 3.9.2 settings.*

8. Tap the *Encryption* and/or *Authentication* tabs.

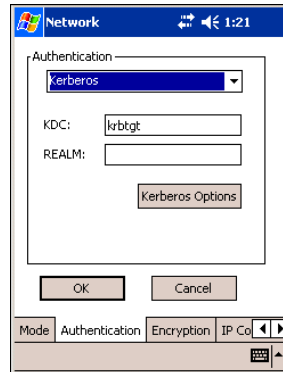


Figure 4-9. Mobile Companion - Authentication Tab

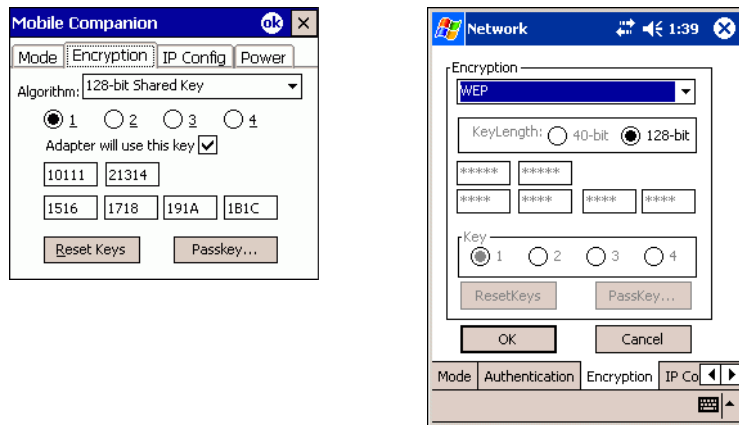


Figure 4-10. Mobile Companion - Encryption Tab

9. Select the encryption and/or authentication information used on the wireless network. Refer to [Chapter 5, *Spectrum24 Network Configuration \(V 3.9.1\)*](#) for information on Mobile Companion version 3.9.1 settings and to [Chapter 6, *Spectrum24 Network Configuration \(V 3.9.2\)*](#) for information on Mobile Companion Version 3.9.2 settings. See your network administrator for this information.



10. Tap the *IP Config* tab.

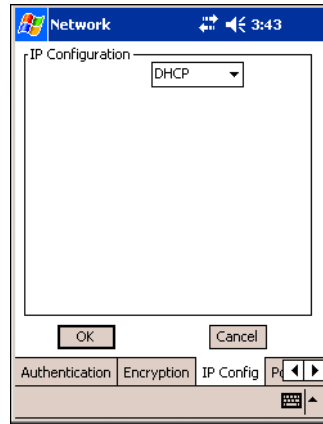
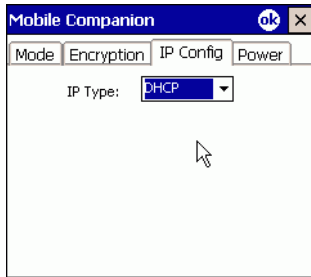


Figure 4-11. Mobile Companion - IP Config Tab (DHCP)

11. Select either *DHCP* or *Static* from the *IP Type* drop-down list.

If you select Static IP, enter the required data in the fields that appear in the window. See your network administrator for this information.

12. Tap **ok**.

13. Tap **ok**.

14. The Mobile Companion wireless status icon should indicate that the terminal is connected to the AP. If the status icon does not indicate that the terminal is connected to the AP, see your network administrator.

15. Tap *Start* - *Settings* - *Connections* tab - *Connections* icon - *Advanced* tab.

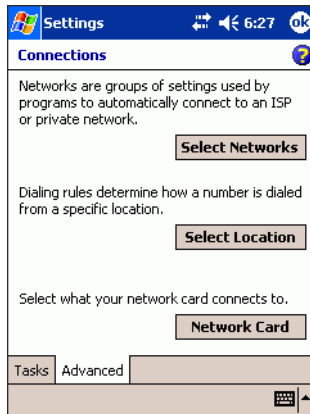


Figure 4-12. Connections Window - Advanced Tab

16. Tap **Network Card**. The *Configure Network Adapters* window appears.

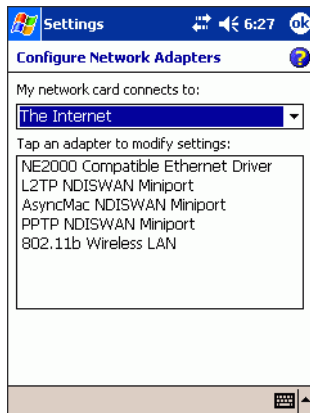
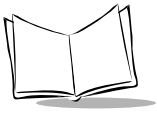


Figure 4-13. Configure Network Adapters Window

17. Select *The Internet* from the *My network card connects to:* drop-down list.
 18. Tap **ok**.
 19. Tap **ok**.



20. Tap *Start - Internet Explorer*. The *Pocket Internet Explorer* window appears.



Figure 4-14. Pocket Internet Explorer Window

21. In the address bar, enter the URL for a web site.

Infrared Communication

Using Infrared Receive (IR), you can send and receive information, such as contacts, appointments and files between two terminals.

Send Information

To send information:

1. Open the program in which you created the item you want to send and locate the item in the list. For example, a contact name in the *Contacts* application.

Note: *Ensure that the receiving terminal is enabled to accept IR beams.*
See [Receive Information](#) on page 4-37.

2. Align the IR port of your terminal with the IR port of the receiving device so that they are unobstructed and within close range.
3. Tap and hold the item to send until the menu appears.

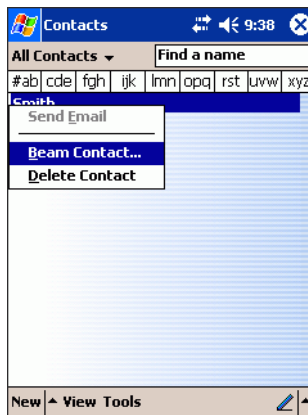


Figure 4-15. Beaming Contact Information



4. Tap *Beam [Item]* on the menu. A window displays showing the terminal searching for a device.



Figure 4-16. Searching for a Device

5. After the file is sent a message appears indicating successful data transfer.

Note: You can also send items, but not folders, from File Explorer. Tap and hold the item, then tap Beam File on the pop-up menu.

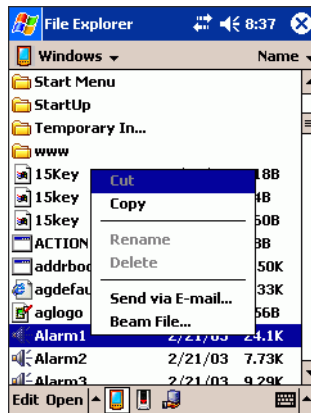


Figure 4-17. Beaming a File from File Explorer

Receive Information

To receive information, align the IR ports so that they are unobstructed and within close range. When information is sent from the other terminal, your terminal (if configured) receives it automatically.

1. In order to receive information automatically, tap *Start - Settings - Connection* tab - *Beam* icon. The *Beam* window appears.

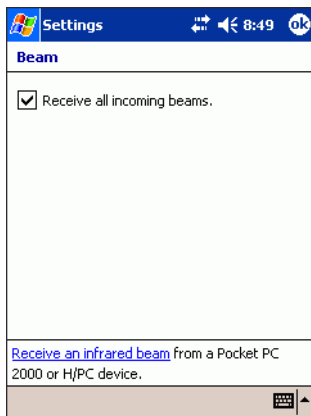
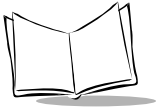


Figure 4-18. Beam Window

2. Select the *Receive all incoming beams* check box to receive beams.



3. By default the terminal detects incoming infrared (IR) beams and prompts you to accept them.



Figure 4-19. Receiving Beam Data Acknowledgement

4. If you do not want the terminal to detect or receive beams, deselect the *Receive all incoming beams* check box.

Note: *If someone attempts to send you an IR beam from an older terminal, you may not be prompted to accept it. In this case, before the beam is sent from the other terminal, tap Receive an infrared beam at the bottom of the Beam window.*



Chapter 5

Spectrum24 Network Configuration (V 3.9.1)

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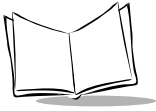
Introduction

Wireless LANs allow PPT 8846 and PPT 8866 terminals to communicate wirelessly, and to send captured data “real time” to a host device. Before a terminal can be used on a Spectrum24 LAN your facility must be set up with the equipment required to run the wireless LAN and the terminal must be properly configured. Refer to the documentation that came with your Access Points (APs) for instructions on setting up the required hardware.

Note: *In Symbol PPT 8866 terminals with Bluetooth Extension Version 3.2 (see [Figure 3-25 on page 3-32](#)), only one radio can be on at a time. Bluetooth can not be used when 802.11b is in use. To enable simultaneous mode, Bluetooth Extensions Version 3.3 or greater is required. For information about Bluetooth wireless communication, see [Chapter 8, PPT 8866 Bluetooth](#).*

The terminal Network Adapter settings and Spectrum24 settings configure and monitor the wireless connection. The *Mobile Companion* icon appears in the task tray, and indicates terminal signal strength as follows:

Icon	Status
	Excellent signal strength
	Very good signal strength
	Good signal strength
	Fair signal strength
	Poor signal strength
	Out-of-network range (not associated)



Mobile Companion

The *Mobile Companion* utility is used to configure the terminal's wireless network settings. The *Mobile Companion* utility starts automatically and appears as an icon on the task tray. The status icon changes in real-time to reflect the signal strength and availability of the adapter and the wireless network. Tap the icon on the task tray to open the *Mobile Companion* menu.

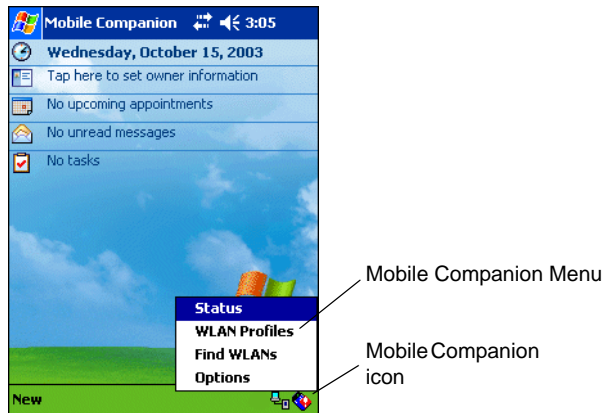


Figure 5-1. Mobile Companion Menu

When the menu opens, select *Status*, *WLAN Profiles*, *Find WLANs* or *Options* from menu.

Table 5-1. Mobile Companion Menu Descriptions

Menu Item	Description
Status	<p>Displays the current status and information for the wireless connection.</p> <p><i>Signal</i> tab view - displays radio signal transmission strength from the adapter (using its current profile) to the associated AP.</p> <p><i>Info</i> tab view - displays software, driver, firmware, hardware, and country information and the current profile name, ESSID and encryption mode.</p> <p><i>IP Status</i> tab view - displays network address information.</p> <p><i>Ping</i> tab view - displays signal strength data, data rate, and conduct data transmission tests between the terminal and associated AP or client.</p>
Status (Cont'd)	<p><i>APs</i> tab view - displays APs with the same ESSID within the current WLAN profile. The terminal's roaming capabilities can be set from this tab. When not in Ad Hoc operating mode, the <i>APs</i> tab displays instead of the <i>Peers</i> tab.</p> <p><i>Peers</i> tab view - displays the BSSIDs, power modes, transmit rates and data rates of other networked clients within the Ad Hoc (peer-to-peer) network. When in <i>Ad Hoc</i> operating mode, the <i>Peers</i> tab view displays instead of the <i>APs</i> tab.</p>
WLAN Profiles	Displays the current profiles and allows the user to add, edit and delete profiles.
Find WLANs	Displays a list of Spectrum24 networks (APs and networked peers) available to the terminal for association. The networks are listed by their ESSID. To the right of each network is a signal strength icon. Networks with a signal strength of Good (three green bars out of five) or better should be considered for connection. Tap a network and tap Connect to interoperate with the AP representing that network. Once connected, the <i>Mode</i> , <i>Encryption</i> , <i>IP Config</i> and <i>Power</i> tab views display the ESSID, security settings, network address information and power consumption level set for that network. See Finding WLANs on page 5-6 for more information.

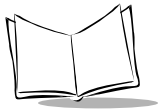


Table 5-1. Mobile Companion Menu Descriptions (Continued)

Menu Item	Description
Options	Displays settings for configuring system sounds, AP and terminal association capabilities, profile roaming options, as well as password protecting the Mobile Companion utility.

Finding WLANs

A completed profile is a set of terminal configuration settings that can be used in different locations to connect to a Spectrum24 network. Creating different profiles is a good way of having pre-defined terminal operating parameters available for use in various Spectrum24 network environments.

Select *Find WLANs* from the *Mobile Companion* menu to locate the APs in the area. The *Mobile Companion* window displays the available WLAN networks.

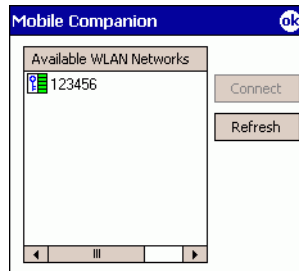


Figure 5-2. Available WLAN Networks

1. Select an available WLAN network from the list box.

2. Tap **Connect**. The *Mode* tab appears.

The screenshot shows the 'Mobile Companion' dialog box with the 'Mode' tab selected. The 'Operating Mode' dropdown is set to 'Infrastructure'. The 'Profile Name' and '802.11 ESSID' fields both contain the text '123456'. The 'Country' dropdown is set to 'USA'.

Infrastructure Mode

The screenshot shows the 'Mobile Companion' dialog box with the 'Mode' tab selected. The 'Operating Mode' dropdown is set to 'Ad-Hoc'. The 'Profile Name' and '802.11 ESSID' fields both contain the text '123456'. The 'Country' dropdown is set to 'USA'. The 'Channel' dropdown is set to '1', and the 'Long preamble' checkbox is checked.

Ad Hoc Mode

Figure 5-3. Mode Tab

3. The *Profile Name:* and *802.11 ESSID:* fields are populated with the name and (WLAN) identifier of the network connection. You can change the *Profile Name:* if desired.

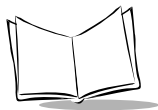
Use the *Profile Name* field to enter the name of the terminal profile used to transmit with either an AP or another networked computer.

The ESSID is the 802.11 Extended Service Set Identifier. The ESSID is 32-character (maximum) string identifying the WLAN. The ESSID assigned to the terminal is required to match the AP ESSID for the terminal to communicate with the AP.

4. Select the operating mode from the *Operating Mode:* drop-down list:

Infrastructure

Select *Infrastructure* to enable the terminal to transmit and receive data with an AP. Infrastructure is the terminal default mode when Mobile Companion initially displays.



Ad Hoc

Select *Ad Hoc* to enable the terminal to form its own local network where terminals communicate peer-to-peer without APs using a shared ESSID. Select the *Long preamble* check box if the terminal and its profile are using a long preamble when transmitting data. A long preamble is approximately 8 bytes of the packet header attached to the packet prior to transmission. Devices in Ad Hoc mode are required to use the same preamble length to interoperate. The terminal initiating the Ad Hoc network sets the channel (using the *Channel* drop-down list) used by each peer in the Ad Hoc network.

Note: For terminals with a Bluetooth radio, the Bluetooth radio must be turned off when using 802.11b Ad Hoc mode. If the Bluetooth radio is not turned off, the Ad Hoc connection fails while using Bluetooth. See [Chapter 8, PPT 8866 Bluetooth](#) for more information about Bluetooth.

5. Select the country of operation for the terminal from the *Country*: drop-down list. This ensures the terminal is using country code information compatible with the country code data used by the associated AP.
6. Select the *Encryption* tab to set the terminal profile security level.

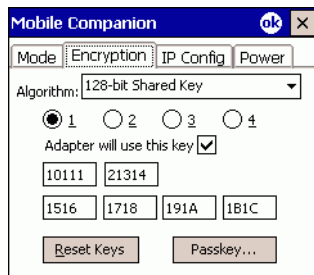


Figure 5-4. Encryption Tab

The terminal supports Open System (no encryption), 40-bit Shared Key, 128-bit Shared Key, Kerberos and LEAP encryption algorithms. The absence of a physical connection makes wireless links vulnerable to information theft. Encryption is an efficient method of preventing data theft and improving data security.

The AP and the terminal are required to use the same encryption algorithm to associate and transmit data. If an AP is set to Open System and an adapter is set

to 40-bit or 128-bit, no association takes place. Similarly, if an adapter is set to Open System and an AP is set to 40-bit or 128-bit, no association takes place.

If an AP is set to 40-bit and a terminal is set to 128-bit the terminal can associate with the AP, but no data transmission and reception can take place.

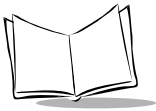
7. Select one of the following *Encryption* options from the *Algorithm*: drop-down list:

Open System (no encryption)	Use the Open System option as the default setting when no data packet encryption is needed over the network. Selecting Open System provides no security for the data being transmitted over the network.
40-bit Shared Key	Select 40-bit encryption and enter a 10-digit hex encryption key. Tap Reset Keys to set the encryption key to the default values.
128-bit Shared Key	Select 128-bit encryption and enter a 26-digit hex encryption key. The 128-bit encryption option provides a higher level of security than 40-bit encryption while maintaining an 11 Mbps data rate. Tap Reset Keys to set the encryption key to the default values.

Note: The default Hex digit keys are visible any time they are used. As a security precaution after setting the key values for the network, the digits are replaced with asterisks * within the encryption key fields.

If the associated AP is using an optional **Passkey**, the "active" terminal profile is required to use one as well. The Passkey is a plain text representation of the WEP keys displayed in the *Encryption* tab. The Passkey provides an easy way to enter WEP key data without having to remember the entire 40-bit (10 character) or 128-bit (26 character) Hex digit string.

Tap **Passkey** to display the *Passkey* window. Enter an easy-to-remember 4 to 26 character string to be used as the WEP algorithm. Tap **OK**. The AP transforms the Passkey string into a set of four WEP keys using MD5 algorithms and displays them in the *WEP* fields. These are the new WEP keys for the terminal profile. Once displayed in the WEP key fields, the adapter profile behaves as if the keys were entered manually.



Kerberos

Kerberos is a different form of 128-bit data security whereby a terminal is required to have its request for AP resources authenticated with a Kerberos server before the server permits the AP to transmit and receive data with the associated terminal.

Select *Kerberos* and enter the key distribution center (*KDC*) and *Realm* values. The KDC is located on a server and maintains information about the APs and users it supports. The KDC also permits the transmission and receipt of data once the credentials of the user are verified. The *KDC* field should remain with the default KDC name (krbtgt) unless it is changed in the server. Enter the name of the server that hosts the Kerberos KDC in the *Realm* field.

LEAP

LEAP (Lightweight Extensible Authentication Protocol) is an 802.1X authentication type for wireless LANs that supports strong mutual authentication between the client and a RADIUS server. It provides dynamic per-user, per-session Wired Equivalent Privacy (WEP) key enhancements to mitigate a variety of network attacks.

Select *LEAP*. When you attempt to connect to the server, the *Network Log On* screen displays. Enter your user name, password and if necessary, the domain name. Consult your system administrator for this information.

1. Select the *IP Config* tab to configure the following terminal profile network address parameters: IP address, subnet, gateway, DNS and WINS. Changes made within the *IP Config* tab only impact the profile selected in the *Mode* tab and do not impact the network address parameters configured for other profiles.

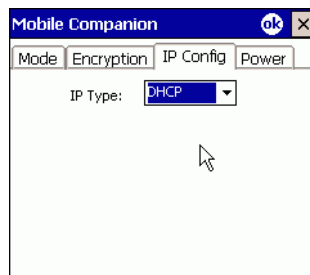


Figure 5-5. Mobile Companion - IP Config Tab (DHCP)

- Select Dynamic Host Configuration Protocol (*DHCP*) from the *IP Type* drop-down list to obtain a leased IP address and network configuration information from a remote server. DHCP is the default setting for the terminal profile. When DHCP is selected, the IP address fields are read-only.
- Select *Static* to manually assign the IP, subnet mask, default gateway, DNS and WINS addresses used by the terminal profile.

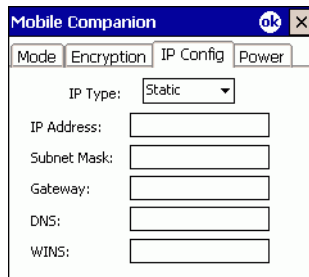
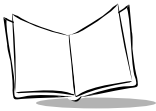


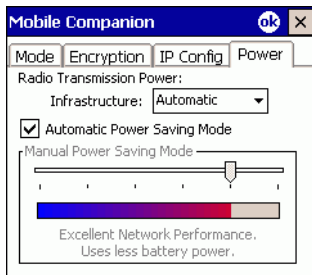
Figure 5-6. Mobile Companion - IP Config Tab (Static)

IP Address	The Internet is a collection of networks with users that communicate with each other. Each communication carries the address of the source and destination networks and the particular machine within the network associated with the user or host computer at each end. This address is called the IP address (Internet Protocol address). Each node on the IP network must be assigned a unique IP address that is made up of a network identifier and a host identifier. Enter the IP address as a dotted-decimal notation with the decimal value of each octet separated by a period, for example, 192.168.7.27.
Subnet Mask	Most TCP/IP networks use subnets in order to effectively manage routed IP addresses. Having an organization's network divided into subnets allows it to be connected to the Internet with a single shared network address, for example, 255.255.255.0.
Gateway	The default gateway is a device that is used to forward IP packets to and from a remote destination.

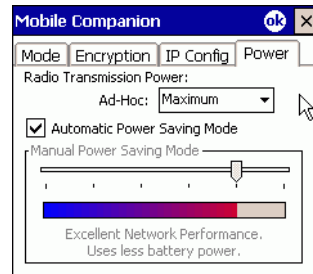


- DNS** The Domain Name System (DNS) is a distributed Internet directory service. DNS is used mostly to translate domain names and IP addresses. It is also used to control Internet email delivery. Most Internet service requires DNS to operate properly. If DNS is not configured, Web sites cannot be located and/or email delivery fails.
- WINS** WINS is a Microsoft® Net BIOS name server. WINS eliminates the broadcasts needed to resolve computer names to IP addresses by providing a cache or database of translations.

2. Select the *Power* tab to set the *Radio Transmission Power* level and the *Power Saving Modes* for the terminal profile.



Infrastructure Mode



Ad Hoc Mode

Figure 5-7. Mobile Companion - Power Tab

Adjusting the *Radio Transmission Power* level enables you to expand or confine the transmission area with respect to other wireless devices that could be operating nearby. Reducing a coverage area in high traffic areas improves transmission quality by reducing the number of noises in that coverage area.

- In Infrastructure mode there are two transmission power options:
 - Select *Automatic* to use the AP power level. *Automatic* is the default mode for terminals operating in Infrastructure mode.
 - Select *Power Plus* to set the terminal transmission power one level higher than the level set for the AP.
- In Ad Hoc mode there are five transmission power options:

- Select *Maximum* power to set the terminal to the highest transmission power level. Select *Maximum* power when operating in highly reflective environments and areas where other devices could be operating nearby. Additionally, use the maximum power level when attempting to communicate with devices at the outer edge of a coverage area.
- Select 50%, 25% or 10% to set the transmit power level to that percentage of the maximum power level.
- Select *Minimum* power to set the terminal to the lowest transmission power level. Use the minimum power level when communicating with other devices in very close proximity. Additionally, select minimum power in instances where little or no radio interference from other devices is anticipated.

The *Automatic Power Saving Mode* switches to *Best Network Performance* when an AC power supply is detected. If a battery is used, an appropriate setting between *Best Network Performance* and *Acceptable Network Performance* is automatically chosen based on a real-time analysis of network usage. The *Automatic Power Saving Mode* is the default setting and extends the operating time before the battery is recharged.

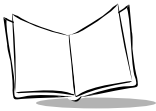
The *Manual Power Saving Mode* allows you to select a performance level suited to intended operation. There are six settings ranging from the *Best Network Performance* (using the most battery power) to *Acceptable Network Performance* (using the least battery power). A network performance description is displayed for each power range.

3. Tap **OK** to implement power consumption changes for the terminal profile.

Status

To view the status of the wireless network connection, select *Status* from the *Mobile Companion* menu.

1. Select the *Signal* tab to display a real-time graph of the signal quality of the terminal to the associated AP (Infrastructure Mode only). The number of times the terminal has roamed to and from APs, the current data rate, and the network status are



displayed. Signal quality is an indicator of how clearly the adapter can hear the associated AP.

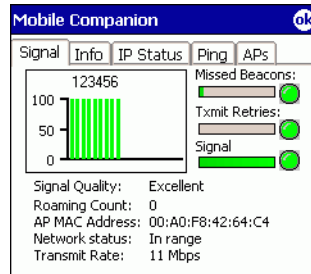


Figure 5-8. Mobile Companion - Signal Tab

Note: The Signal tab is view only and is not available if the current operating mode is Ad Hoc.

Missed Beacons	Displays the amount of beacons (uniform system packets broadcast by the AP to keep the network synchronized) missed by the terminal. The fewer the missed beacons the better the signal. As long as the LED to the right of the graph is green the AP association is not jeopardized by an excess of missed AP beacons. If the LED is Red, an association with a different AP could be warranted to reduce the amount of missed beacons and improve the signal.
Txmit Retries (Transmit Retries)	Displays the number of data packets retransmitted by the terminal. The fewer transmit retries the stronger the signal. As long as the LED to the right of the graph is green the AP association is not jeopardized. If the LED is red, an association with a different AP could be warranted to reduce the amount of transmit retries and improve the signal.
Signal	Displays the Relative Signal Strength Indicator (RSSI) of the signal transmitted between the AP and terminal. As long as the LED to the right of the graph is green the AP association is not jeopardized. If the LED is red, an association with a different AP could be warranted to improve the signal.

2. Select the *Info* tab to view the terminal's current software and driver revision data as well as the operating parameters of the current profile.

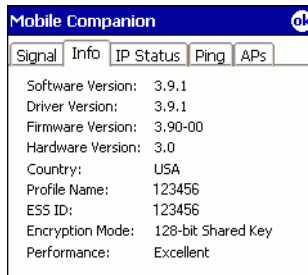
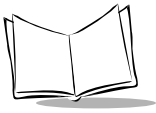


Figure 5-9. Mobile Companion - Info Tab

Version Information	Displays the terminal's software, driver, firmware and hardware versions as well as country information. This data is consistent for the terminal regardless of which terminal profile is the current profile.
Current Status	Displays the terminal's current Profile Name, ESSID, and Encryption mode. Terminal performance is displayed using a verbal indicator of signal strength. Terminal operating information differs depending on which profile has been enabled as the current profile.



3. Select the *IP Status* tab to view the terminal's network address information. Unlike the *IP Config* tab in Finding WLANs, the *IP Status* tab is view only with no user-configurable data fields.

The screenshot shows the 'Mobile Companion' application window with the 'IP Status' tab selected. The window has a blue title bar and an 'ok' button in the top right corner. Below the title bar are five tabs: 'Signal', 'Info', 'IP Status' (which is active), 'Ping', and 'APs'. The 'IP Status' tab displays the following information:

IP Type:	DHCP	Renew
IP Address:	169.254.154.66	
Subnet Mask:	255.255.0.0	
Gateway:		
DNS:		
WINS:		
MAC Address:	00:A0:F8:3D:17:DB	
Host Name:	Pocket_PC4	

Figure 5-10. Mobile Companion - IP Status Tab

IP Type	If DHCP was selected from the <i>IP Config</i> tab, leased IP address and network address data displays for the terminal. If Static was selected, the values displayed were input manually in the <i>IP Config</i> tab on page 5-11.
IP Address	The Internet is a collection of networks with users that communicate with each other. Each communication carries the address of the source and destination networks and the particular machine within the network associated with the user or host computer at each end. This address is called the IP address. Each node on the IP network must be assigned a unique IP address that is made up of a network identifier and a host identifier. Enter the IP address as a dotted-decimal notation with the decimal value of each octet separated by a period, for example, 192.168.7.27.
Subnet Mask	Most TCP/IP networks use subnets in order to effectively manage routed IP addresses. Having an organization's network divided into subnets allows it to be connected to the Internet with a single shared network address, for example, 255.255.255.0.
Gateway	The gateway is a device that is used to forward IP packets to and from a remote destination.

DNS	The Domain Name System (DNS) is a distributed Internet directory service. DNS is used mostly to translate domain names and IP addresses. It is also used to control Internet e-mail delivery. Most Internet service requires DNS to operate properly. If DNS is not configured, Web sites cannot be located or e-mail delivery fails.
WINS	WINS is a Microsoft Net BIOS name server. WINS eliminates the broadcasts needed to resolve computer names to IP addresses by providing a cache or database of translations.
MAC Address	An IEEE 48-bit address the terminal is assigned at the factory that uniquely identifies the adapter at the physical layer.
Host Name	Displays the name of the terminal.

4. Tap **Renew** to refresh the information displayed (through a DHCP request) within the *IP Status* tab.
5. Select the *Ping* tab to send and receive ICMP ping packets across the network to the specified IP address.

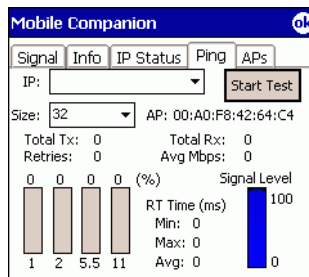
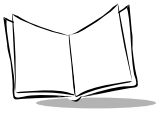


Figure 5-11. Mobile Companion - Ping Tab

6. Select a target device IP address from the *IP* drop-down list.
7. Select the size of the packet transmission from the *Size* drop-down list.
8. Tap **Start Test** to begin the ping test.
9. Tap **Stop Test** to terminate the ping test.

The average mega-bits per second, signal strength, data rate currently in use, test statistics and round trip (RT) times are displayed for each test. The associated AP MAC address is also displayed. The signal strength level and the data transmission rate are displayed in real-time bar graphs.



10. Select the *APs* tab to view APs with the same ESSID as the terminal's profile.

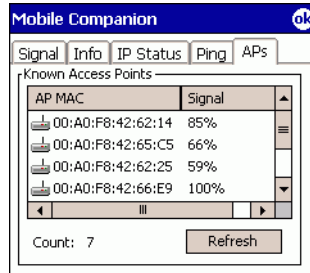


Figure 5-12. Mobile Companion - APs Tab

The associated AP displays a radio wave radiating from its antenna to indicate its associated status. Tapping on the icon displays a menu with *Set Mandatory* and *Set Roaming* options.

Selecting the *Set Mandatory* item prohibits the terminal from associating with a different AP. The letter *M* displays on top of the icon when the *Set Mandatory* option has been selected.

Selecting *Set Roaming* allows the terminal to roam to any AP with a better signal. These settings are temporary and never saved to the registry.

Tap **Refresh** to update the list of the APs with the same ESSID. A signal strength value of 32 is the highest possible. The *APs* tab only displays when Infrastructure is selected as the terminal operating mode from the *Mode* tab.

11. If the terminal is in Ad Hoc mode, select the *Peers* tab to display the BSSID or MAC addresses of the other terminals in the network, their operating mode (PSP or CAM), their transmit rate, their supported data rate and the length of time an

adapter has been out of the Ad Hoc network. Tap **Refresh** to update the *Peers* tab to the latest Ad Hoc network performance and terminal membership data.

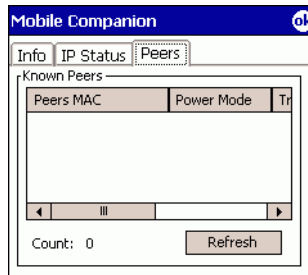


Figure 5-13. Mobile Companion - Peers Tab

Setting Options

Select *Options* from the Mobile Companion menu to enable or disable international roaming, configure consumption avoidance capabilities, enable system sounds, and set temporary settings.

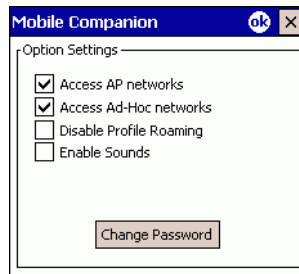
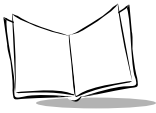


Figure 5-14. Mobile Companion - Option Settings

1. Select the *Access AP networks* check box to display available AP networks and their signal strength within the *Available WLAN Networks* tab. These are the APs available to the terminal profile for association. If this option was previously disabled, refresh the *Available WLAN Networks* tab to display the AP networks available to the terminal.
2. Select the *Access Ad-Hoc networks* check box to display available peer (adapter) networks and their signal strength within the *Available WLAN Networks* tab. These are peers available to the terminal profile for association. If this option was previously disabled, refresh the *Available WLAN Networks* tab to display the Ad Hoc networks available to the terminal.



3. Select the *Disable Profile Roaming* checkbox to configure the adapter WLAN profile to not roam to the next available WLAN profile when the terminal moves out of range of the current WLAN profile.
4. Select the *Enable Sounds* check box to initiate an audible signal when performing a ping test and associating with an AP. The tones are important to notify users if the pinging is received or if the terminal has roamed to another AP.

Note: *Mobile Companion has a password protection feature. When Mobile Companion initially displays, the password is off by default.*

5. To create a password, tap **Change Password**.

The screenshot shows a 'Change Password' dialog box. It has a blue header with the text 'Change Password' and a small 'OK' button in the top right corner. Below the header, there are three text input fields. The first is labeled 'Current Password:', the second is labeled 'New Password:', and the third is labeled 'Confirm New Password:'. At the bottom of the dialog, there are two buttons: 'OK' and 'Cancel'.

Figure 5-15. Mobile Companion - Change Password

6. Enter a case sensitive password (10 characters maximum) in the *Current Password* field and tap **OK**. To change the current password, enter the current password in the *Current Password* field and enter a new password in the *New Password* and *Confirm Password* fields and tap **OK**.

Changing Profiles

Select *WLAN Profiles* from the *Mobile Companion* menu to view, connect to, create and edit a profile. A completed profile is a set of adapter configuration settings that can be used in different locations to connect to a wireless network. Creating different profiles is a good way of having pre-defined operating parameters available for use in various network

environments. When the *WLAN Profiles* window initially displays, existing profiles appear in the *WLAN Profiles* list box.

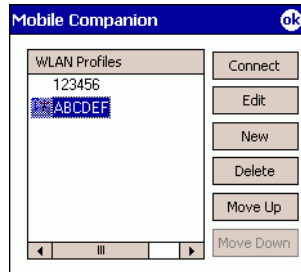


Figure 5-16. Mobile Companion - WLAN Profiles

Select a profile from the list box and tap **Connect** to set that profile as the active profile. The active profile displays the transmit and receive icon to the left. Once selected, the terminal is using the ESSID, encryption and power consumption settings initially configured for that profile.

Editing a Profile

Select a profile from the list box and tap **Edit** to display the *Mode* tab where the ESSID and operating mode can be changed for the profile. Use the *Encryption*, *IP Config*, and *Power* tabs as necessary to edit the profile power consumption and security parameters.

Creating a New Profile

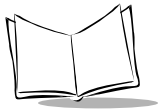
Tap **New** to display the *Mode* tab wherein the profile name and ESSID can be set. Use the *Encryption*, *IP Config* and *Power* tabs as required to set security, network address information and power consumption level for the new profile.

Deleting a Profile

Select a profile to delete from the list box and tap **Delete** to remove the selected profile.

Ordering Profiles

Select a profile from the list box and tap **Move Up** or **Move Down** to order the profile. If the current profile association is lost, Mobile Companion attempts to associate with the first profile in the list and then the next until a new association is achieved.

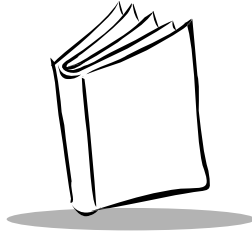


Configuring the Radio Using a Registration File

Default settings for the Spectrum24 radio card can be set on the terminal using a registration (.reg) file. A sample .reg file is provided on the SMDK. Edit the file using a text editor. See notes in the sample file for the key information that can be modified.

Save this text file as SPECTRUM24DS.REG. Use ActiveSync to copy this file to the *Platform* folder on the terminal. Once this file is loaded onto the terminal, these settings are restored after a hard reset.

Note: Refer to the SMDK for the latest sample file.

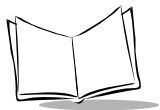


Chapter 6

Spectrum24 Network Configuration (V 3.9.2)

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Introduction

Wireless LANs allow PPT 8846 and PPT 8866 terminals to communicate wirelessly, and to send captured data “real time” to a host device. Before a terminal can be used on a Spectrum24 LAN the facility must be set up with the equipment required to run the wireless LAN and the terminal must be properly configured. Refer to the Access Points (APs) documentation for instructions on setting up the required hardware.

Note: *In Symbol PPT 8866 terminals with Bluetooth Extension Version 3.2 (see [Figure 3-25 on page 3-32](#)), only one radio can be on at a time. Bluetooth can not be used when 802.11b is in use. To enable simultaneous mode, Bluetooth Extensions Version 3.3 or greater is required. For information about Bluetooth wireless communication, see [Chapter 8, PPT 8866 Bluetooth](#).*

The terminal Network Adapter settings and Spectrum24 settings configure and monitor the wireless connection. The *Mobile Companion* icon appears in the task tray, and indicates terminal signal strength as follows:

Icon	Status
	Excellent signal strength
	Very good signal strength
	Good signal strength
	Fair signal strength
	Poor signal strength
	Out-of-network range (not associated)



Mobile Companion

The *Mobile Companion* utility is used to configure the terminal's wireless network settings. The *Mobile Companion* utility starts automatically and appears as an icon on the task tray. The status icon changes in real-time to reflect the signal strength and availability of the adapter and the wireless network. Tap the icon on the task tray to open the *Mobile Companion* menu.

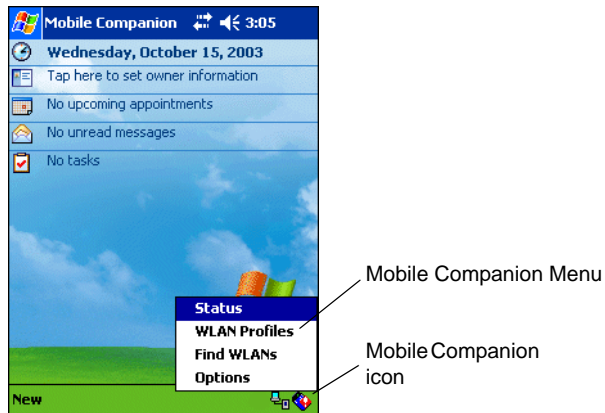


Figure 6-1. Mobile Companion Menu

When the menu opens, select *Status*, *WLAN Profiles*, *Find WLANs* or *Options* from menu.

Table 6-1. Mobile Companion Menu Descriptions

Menu Item	Description
Status	<p>Displays the current status and information for the wireless connection.</p> <p><i>Signal</i> tab view - displays radio signal transmission strength from the adapter (using its current profile) to the associated AP.</p> <p><i>Info</i> tab view - displays software, driver, firmware, hardware, and country information and the current profile name, ESSID and encryption mode.</p> <p><i>IP Status</i> tab view - displays network address information.</p> <p><i>Ping</i> tab view - displays signal strength data, data rate, and conduct data transmission tests between the terminal and associated AP or client.</p>
Status (Cont'd)	<p><i>APs</i> tab view - displays APs with the same ESSID as the current WLAN profile. The terminal's roaming capabilities can be set from this tab. When not in Ad Hoc operating mode, the <i>APs</i> tab displays instead of the <i>Peers</i> tab.</p> <p><i>Peers</i> tab view - displays the BSSIDs, power modes, transmit rates and data rates of other networked clients within the Ad Hoc (peer-to-peer) network. When in <i>Ad Hoc</i> operating mode, the <i>Peers</i> tab view displays instead of the <i>APs</i> tab.</p>
WLAN Profiles	Displays the current profiles and allows the user to add, edit and delete profiles.
Find WLANs	Displays a list of Spectrum24 networks (APs and networked peers) available to the terminal for association. The networks are listed by their ESSID. To the right of each network is a signal strength icon. Networks with a signal strength of Good (three green bars out of five) or better should be considered for connection. Tap a network and tap Connect to interoperate with the AP representing that network. Once connected, the <i>Mode</i> , <i>Encryption</i> , <i>IP Config</i> and <i>Power</i> tab views display the ESSID, security settings, network address information and power consumption level set for that network. See Finding WLANs on page 6-6 for more information.

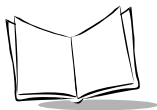


Table 6-1. Mobile Companion Menu Descriptions (Continued)

Menu Item	Description
Options	Displays settings for configuring system sounds, AP and terminal association capabilities, profile roaming options, as well as the password protecting the Mobile Companion utility.

Finding WLANs

A completed profile is a set of terminal configuration settings that can be used in different locations to connect to a Spectrum24 network. Creating different profiles is a good way of having pre-defined terminal operating parameters available for use in various Spectrum24 network environments.

Select *Find WLANs* from the *Mobile Companion* menu to locate the APs in the area. The *Mobile Companion* window displays the available WLAN networks.

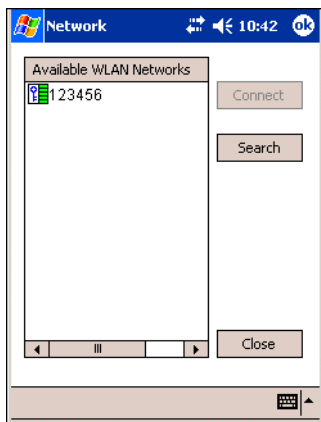


Figure 6-2. Available WLAN Networks

1. Select an available WLAN network from the list box.

2. Tap **Connect**. The *Mode* tab appears.

Network 12:01

Wireless LAN Mode

Profile Name : 123456

802.11 ESSID: 123456

Operating Mode: Infrastructure

Country: USA

OK Cancel

Mode Authentication Encryption IP Co

Infrastructure Mode

Network 12:02

Wireless LAN Mode

Profile Name : 123456

802.11 ESSID: 123456

Operating Mode: Ad-Hoc

Country: USA

☒ Long preamble

Channel Number: 1

OK Cancel

Mode Authentication Encryption IP Co

Ad Hoc Mode

Figure 6-3. Mode Tab

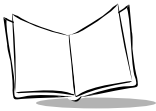
3. The *Profile Name:* and *802.11 ESSID:* fields are populated with the name and (WLAN) identifier of the network connection. You can change the *Profile Name:* if desired.

Use the *Profile Name* field to enter the name of the terminal profile used to transmit with either an AP or another networked computer.

4. The ESSID is the 802.11 Extended Service Set Identifier. The ESSID is 32-character (maximum) string identifying the WLAN. The ESSID assigned to the terminal is required to match the AP ESSID for the terminal to communicate with the AP.
5. Select the operating mode from the *Operating Mode:* drop-down list:

Infrastructure

Select *Infrastructure* to enable the terminal to transmit and receive data with an AP. Infrastructure is the terminal default mode when Mobile Companion initially displays.



Ad Hoc

Select *Ad Hoc* to enable the terminal to form its own local network where terminals communicate peer-to-peer without APs using a shared ESSID. Select the *Long preamble* check box if the terminal and its profile are using a long preamble when transmitting data. A long preamble is approximately 8 bytes of the packet header attached to the packet prior to transmission. Devices in Ad Hoc mode are required to use the same preamble length to interoperate. The terminal initiating the Ad Hoc network sets the channel (using the *Channel* drop-down list) used by each peer in the Ad Hoc network.

Note: On the PPT 8866, the Bluetooth radio must be turned off when using 802.11b Ad Hoc mode. If the Bluetooth radio is not turned off, the Ad Hoc connection fails while using Bluetooth. See [Chapter 8, PPT 8866 Bluetooth](#) for more information about Bluetooth.

6. Select the country of operation for the terminal from the *Country*: drop-down list. This ensures the terminal is using country code information compatible with the country code data used by the associated AP.
7. Select the *Authentication* tab to configure server-based authentication. Select an option (None, Kerberos, LEAP, EAP-TLS, PEAP) from the *Authentication* drop-down list. See [Table 6-2 on page 6-10](#) for Authentication option descriptions.

Kerberos Authentication

Credential Caching Settings
(Kerberos Options)

Figure 6-4. Mobile Companion - Authentication Tab (Kerberos)

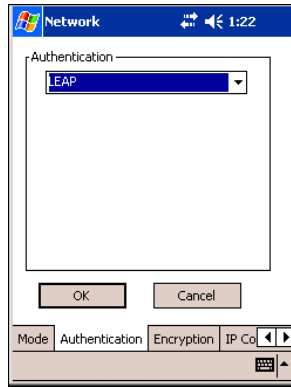


Figure 6-5. Mobile Companion - Authentication Tab (LEAP)

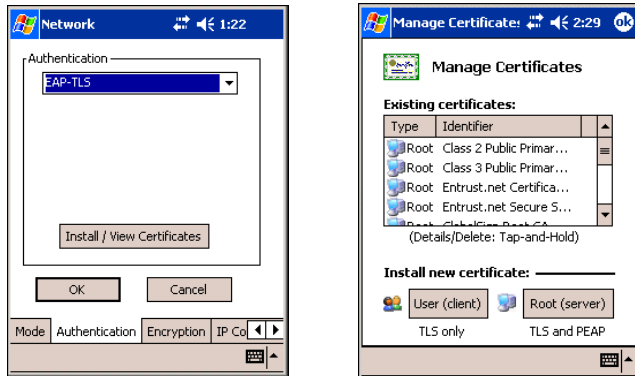


Figure 6-6. Mobile Companion - Authentication Tab (EAP-TLS)

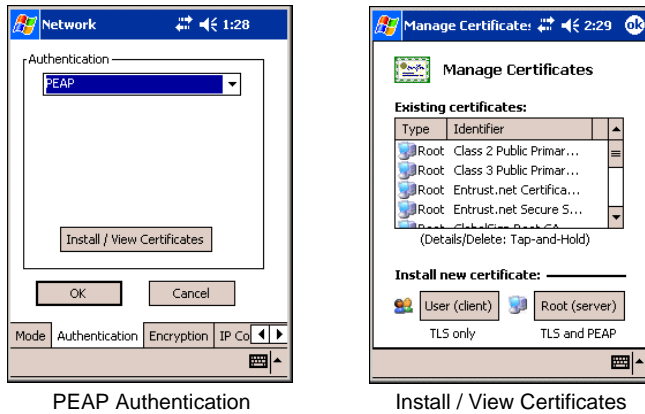
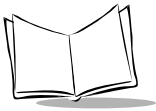


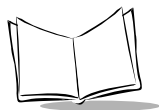
Figure 6-7. Mobile Companion - Authentication Tab (PEAP)

Table 6-2. Authentication Options

Authentication	Description
None	None is the default setting when authentication is not required on the network. The client adapter does not use any authentication scheme when <i>Open System</i> is selected on the <i>Encryption</i> tab.

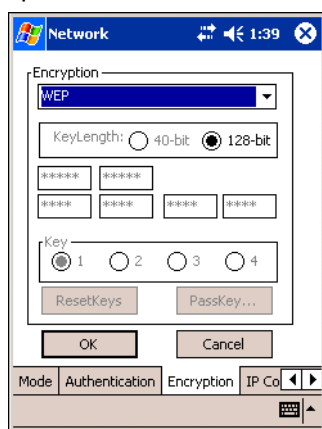
Table 6-2. Authentication Options (Continued)

Authentication	Description
Kerberos (see Figure 6-4)	<p>Kerberos is a different form of 128-bit data security. An adapter is required to have its request for AP resources authenticated with a Kerberos server before the server permits the AP to transmit and receive data with the associated adapter. When Kerberos is selected, the <i>KDC</i> and <i>REALM</i> entry fields appear. The <i>KDC</i> field should remain with the default KDC name (krbtgt) unless it is changed in the server. Enter the name of the server that hosts the Kerberos KDC in the <i>Realm</i> field. The KDC is located on a server and maintains information about the APs and users it supports. The KDC also permits the transmission and receipt of data once the credentials of the user are verified.</p> <p>Tap Kerberos Options to configure different caching modes for Kerberos credentials. When connecting to a Kerberos supported profile, the system can prompt for the associated user name and password at specified instances during the authentication process. Caching of credentials is optional.</p> <p>Kerberos Options:</p> <p>Select any combination of the following Kerberos Credential Caching settings:</p> <p>Reset: When selected, the system prompts the user for the username and password upon a warm boot.</p> <p>Connect: When selected, the system prompts the user for login information when the system initiates a connection to the ESSID.</p> <p>Time: When selected, the system requests a user name and password after the specified time parameter. Available time parameters are specified as an <i>Interval</i> (in minutes) or <i>At (hh:mm)</i> a specified time (chosen with the pull-down menu). If a time option is not selected, authentication continues without a user name and password verification.</p> <p>Resume: When enabled, the system prompts the user for username and password after the system is suspended and subsequently resumed. If disabled, the system prompts for a username and password only if the user's credentials are not in the registry.</p>
LEAP (see Figure 6-5)	<p>Select this option to enable LEAP authentication. LEAP is founded on mutual authentication. The AP and the user attempting to connect to it require authentication before access to the network is permitted.</p>

**Table 6-2. Authentication Options (Continued)**

Authentication	Description
EAP/TLS (see Figure 6-6)	EAP/TLS is an authentication scheme through IEEE 802.1x. It authenticates users and ensures only valid users can connect to the network. It also restricts unauthorized users from accessing transmitted information. EAP/TLS achieves this through secure authentication certificates. Tap Install/View Certificates to invoke a dialog box requesting the installation or retrieval of EAP certificates.
PEAP (see Figure 6-7)	Select this option to enable PEAP authentication. This method uses a digital certificate to verify and authenticate a user's identity.

8. Select the *Encryption* tab to set the adapter profile security level by configuring the encryption scheme and corresponding keys. Select an option (Open System, WEP, or TKIP (WPA)) from the *Encryption* drop-down list. See [Table 6-3 on page 6-13](#) for Encryption option descriptions.

**Figure 6-8. Mobile Companion - Encryption Tab**

The absence of a physical connection makes wireless links vulnerable to information theft. Encryption is an efficient method of preventing data theft and improving data security.

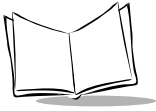
The AP and the terminal are required to use the same encryption algorithm to associate and transmit data. If an AP is set to Open System and an adapter is set to 40-bit or 128-bit, no association takes place. Similarly, if an adapter is set to Open System and an AP is set to 40-bit or 128-bit, no association takes place.

If an AP is set to 40-bit and an adapter is set to 128-bit, the adapter can associate to the access point, but no data transmission and reception can take place.

Table 6-3. Encryption Options

Encryption	Description
Open System	Use the Open System option as the default setting when no data packet encryption is needed over the network. Selecting this option provides no security for the data being transmitted over the network. The window displays only the OK and Cancel buttons.
WEP	<p>Select WEP for the adapter to use the WEP keys for encryption. The window displays several radio buttons and edit buttons to configure the WEP keys. Select 40-bit or 128-bit key lengths (128-bit is the default). WEP keys are manually entered in the edit boxes. Only the required number of edit boxes for a key length is displayed (10 Hex digit value for 40-bit keys, 26 Hex digit values for 128-bit keys). Use the Key radio buttons to configure the four WEP keys. The adapter uses the selected key. Tap ResetKeys to set the encryption key to the default values.</p> <p>Note: The default Hex digit keys are visible any time they are used. As a security precaution after setting the key values for the network, the digits are replaced with asterisks * within the Encryption key fields.</p> <p>If the associated AP is using an optional Passkey, the “active” adapter WLAN profile is required to use one as well. The Passkey is a plain text representation of the WEP keys displayed in the Encryption property window. The Passkey provides an easy way to enter WEP key data without having to remember the entire 40-bit (10 character) or 128-bit (26 character) Hex digit string.</p> <p>Tap Passkey to display the Passkey screen. Enter an easy-to-remember 4 to 32 character string to be used as the WEP algorithm. Tap OK. The AP transforms the Passkey string into a set of four WEP keys using MD5 algorithms and displays them in the WEP fields. These are the new WEP keys for the adapter profile. Once displayed in the WEP key fields, the adapter profile behaves as if the keys were entered manually.</p>
TKIP (WPA)	Select this option for the client adapter to use Wireless Protected Access (WPA) via TKIP. Manually enter the pre-shared keys in the edit boxes. Tap ClearKey to clear all previous keys and enter new key values. Tap Passkey to display the Passkey screen. Enter an easy-to-remember 8 to 63 character string.

9. Select the *IP Config* tab to configure the following terminal profile network address parameters: IP address, subnet, gateway, DNS and WINS. Changes made within



the *IP Config* tab only impact the profile selected in the *Mode* tab and do not impact the network address parameters configured for other profiles.

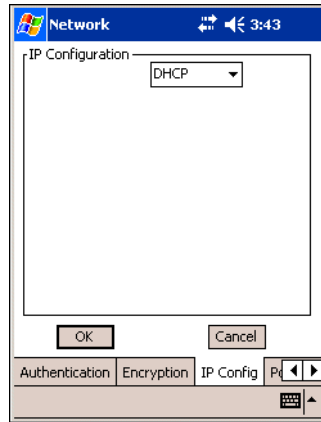


Figure 6-9. Mobile Companion - IP Config Tab (DHCP)

- Select Dynamic Host Configuration Protocol (*DHCP*) from the *IP Type* drop-down list to obtain a leased IP address and network configuration information from a remote server. DHCP is the default setting for the terminal profile. When DHCP is selected, the IP address fields are read-only.
- Select *Static* to manually assign the IP, subnet mask, default gateway, DNS and WINS addresses used by the terminal profile.

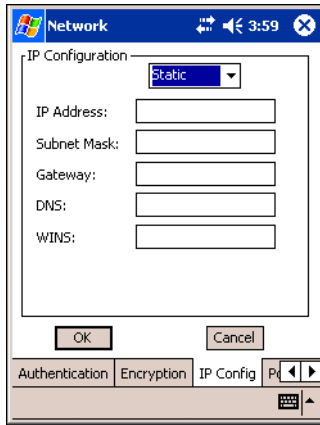
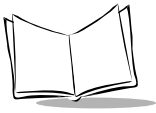
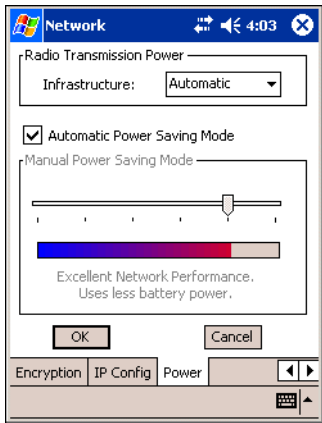


Figure 6-10. Mobile Companion - IP Config Tab (Static)

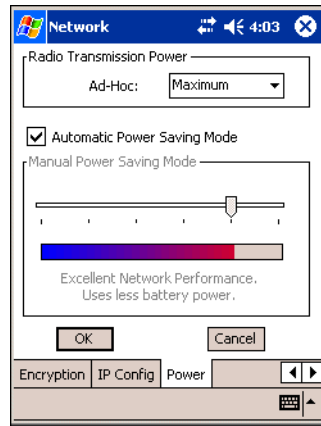
IP Address	The Internet is a collection of networks with users that communicate with each other. Each communication carries the address of the source and destination networks and the particular machine within the network associated with the user or host computer at each end. This address is called the IP address (Internet Protocol address). Each node on the IP network must be assigned a unique IP address that is made up of a network identifier and a host identifier. Enter the IP address as a dotted-decimal notation with the decimal value of each octet separated by a period, for example, 192.168.7.27.
Subnet Mask	Most TCP/IP networks use subnets in order to effectively manage routed IP addresses. Having an organization's network divided into subnets allows it to be connected to the Internet with a single shared network address, for example, 255.255.255.0.
Gateway	The default gateway is a device that is used to forward IP packets to and from a remote destination.
DNS	The Domain Name System (DNS) is a distributed Internet directory service. DNS is used mostly to translate domain names and IP addresses. It is also used to control Internet email delivery. Most Internet service requires DNS to operate properly. If DNS is not configured, Web sites cannot be located and/or email delivery fails.
WINS	WINS is a Microsoft® Net BIOS name server. WINS eliminates the broadcasts needed to resolve computer names to IP addresses by providing a cache or database of translations.



10. Select the *Power* tab to set the *Radio Transmission Power* level and the *Power Saving Modes* for the terminal profile.



Infrastructure Mode



Ad Hoc Mode

Figure 6-11. Mobile Companion - Power Tab

Adjusting the *Radio Transmission Power* level enables expanding or confining the transmission area with respect to other wireless devices that could be operating nearby. Reducing a coverage area in high traffic areas improves transmission quality by reducing the number of noises in that coverage area.

- In Infrastructure mode there are two transmission power options:
 - Select *Automatic* to use the AP power level. *Automatic* is the default mode for terminals operating in Infrastructure mode.
 - Select *Power Plus* to set the terminal transmission power one level higher than the level set for the AP.
- In Ad Hoc mode there are five transmission power options:
 - Select *Maximum* power to set the terminal to the highest transmission power level. Select *Maximum* power when operating in highly reflective environments and areas where other devices could be operating nearby. Additionally, use the maximum power level when attempting to communicate with devices at the outer edge of a coverage area.

- Select *50%*, *25%* or *10%* to set the transmit power level to that percentage of the maximum power level.
- Select *Minimum* power to set the terminal to the lowest transmission power level. Use the minimum power level when communicating with other devices in very close proximity. Additionally, select minimum power in instances where little or no radio interference from other devices is anticipated.

The *Automatic Power Saving Mode* switches to *Best Network Performance* when an AC power supply is detected. If a battery is used, an appropriate setting between *Best Network Performance* and *Acceptable Network Performance* is automatically chosen based on a real-time analysis of network usage. The *Automatic Power Saving Mode* is the default setting and extends the operating time before the battery is recharged.

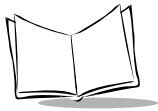
The *Manual Power Saving Mode* allows you to select a performance level suited to intended operation. There are six settings ranging from the *Best Network Performance* (using the most battery power) to *Acceptable Network Performance* (using the least battery power). A network performance description is displayed for each power range.

11. Tap **OK** to implement power consumption changes for the terminal profile.

Status

To view the status of the wireless network connection, select *Status* from the *Mobile Companion* menu.

1. Select the *Signal* tab to display a real-time graph of the signal quality of the terminal to the associated AP (Infrastructure Mode only). The number of times the terminal has roamed to and from APs, the current data rate, and the network status are



displayed. Signal quality is an indicator of how clearly the adapter can hear the associated AP.

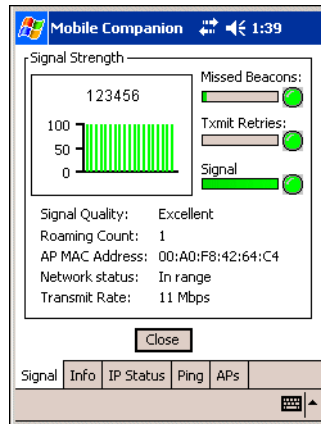


Figure 6-12. Mobile Companion - Signal Tab

Note: *The Signal tab is view only and is not available if the current operating mode is Ad Hoc.*

Missed Beacons	Displays the amount of beacons (uniform system packets broadcast by the AP to keep the network synchronized) missed by the terminal. The fewer the missed beacons the better the signal. As long as the LED to the right of the graph is green the AP association is not jeopardized by an excess of missed AP beacons. If the LED is Red, an association with a different AP could be warranted to reduce the amount of missed beacons and improve the signal.
Txmit Retries (Transmit Retries)	Displays the number of data packets retransmitted by the terminal. The fewer transmit retries the stronger the signal. As long as the LED to the right of the graph is green the AP association is not jeopardized. If the LED is red, an association with a different AP could be warranted to reduce the amount of transmit retries and improve the signal.

Signal Displays the Relative Signal Strength Indicator (RSSI) of the signal transmitted between the AP and terminal. As long as the LED to the right of the graph is green the AP association is not jeopardized. If the LED is red, an association with a different AP could be warranted to improve the signal.

2. Select the *Info* tab to view the terminal's current software and driver revision data as well as the operating parameters of the current profile.

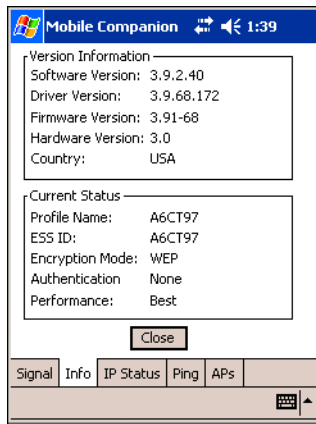
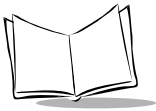


Figure 6-13. Mobile Companion - Info Tab

Version Information Displays the terminal's software, driver, firmware and hardware versions as well as country information. This data is consistent for the terminal regardless of which terminal profile is the current profile.

Current Status Displays the terminal's current Profile Name, ESSID, and Encryption mode. Terminal performance is displayed using a verbal indicator of signal strength. Terminal operating information differs depending on which profile has been enabled as the current profile.



3. Select the *IP Status* tab to view the terminal's network address information. Unlike the *IP Config* tab in Finding WLANs, the *IP Status* tab is view only with no user-configurable data fields.

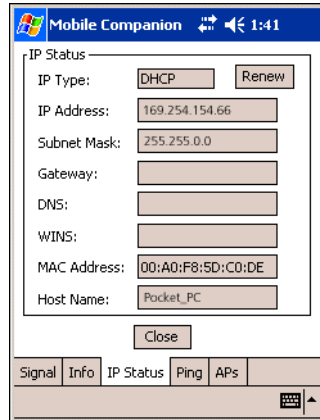


Figure 6-14. Mobile Companion - IP Status Tab

IP Type	If DHCP was selected from the <i>IP Config</i> tab, leased IP address and network address data displays for the terminal. If Static was selected, the values displayed were input manually in the <i>IP Config</i> tab on page 6-15 .
IP Address	The Internet is a collection of networks with users that communicate with each other. Each communication carries the address of the source and destination networks and the particular machine within the network associated with the user or host computer at each end. This address is called the IP address. Each node on the IP network must be assigned a unique IP address that is made up of a network identifier and a host identifier. Enter the IP address as a dotted-decimal notation with the decimal value of each octet separated by a period, for example, 192.168.7.27.
Subnet Mask	Most TCP/IP networks use subnets in order to effectively manage routed IP addresses. Having an organization's network divided into subnets allows it to be connected to the Internet with a single shared network address, for example, 255.255.255.0.
Gateway	The gateway is a device that is used to forward IP packets to and from a remote destination.

DNS	The Domain Name System (DNS) is a distributed Internet directory service. DNS is used mostly to translate domain names and IP addresses. It is also used to control Internet e-mail delivery. Most Internet service requires DNS to operate properly. If DNS is not configured, Web sites cannot be located or e-mail delivery fails.
WINS	WINS is a Microsoft Net BIOS name server. WINS eliminates the broadcasts needed to resolve computer names to IP addresses by providing a cache or database of translations.
MAC Address	An IEEE 48-bit address the terminal is assigned at the factory that uniquely identifies the adapter at the physical layer.
Host Name	Displays the name of the terminal.

4. Tap **Renew** to refresh the information displayed (through a DHCP request) within the *IP Status* tab.
5. Select the *Ping* tab to send and receive ICMP ping packets across the network to the specified IP address.

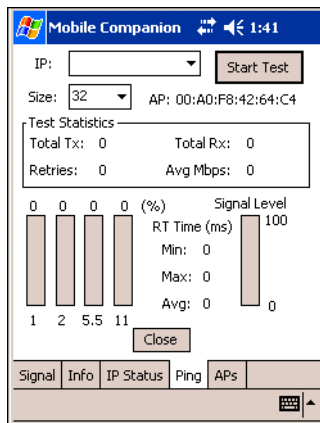
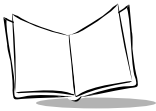


Figure 6-15. Mobile Companion - Ping Tab

6. Select or enter a target device IP address from the *IP* drop-down list.
7. Select the size of the packet transmission from the *Size* drop-down list.
8. Tap **Start Test** to begin the ping test.
9. Tap **Stop Test** to terminate the ping test.



The average mega-bits per second, signal strength, data rate currently in use, test statistics and round trip (RT) times are displayed for each test. The associated AP MAC address is also displayed. The signal strength level and the data transmission rate are displayed in real-time bar graphs.

10. Select the *APs* tab to view APs with the same ESSID as the terminal's profile.

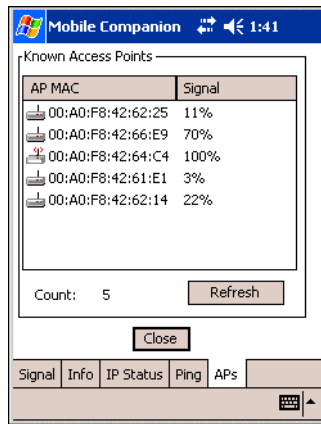


Figure 6-16. Mobile Companion - APs Tab

The associated AP displays a radio wave radiating from its antenna to indicate its associated status. Tapping on the icon displays a menu with *Set Mandatory* and *Set Roaming* options.

Selecting the *Set Mandatory* item prohibits the terminal from associating with a different AP. The letter *M* displays on top of the icon when the *Set Mandatory* option has been selected.

Selecting *Set Roaming* allows the terminal to roam to any AP with a better signal. These settings are temporary and never saved to the registry.

Tap **Refresh** to update the list of the APs with the same ESSID. A signal strength value of 32 is the highest possible. The *APs* tab only displays when Infrastructure is selected as the terminal operating mode from the *Mode* tab.

11. If the terminal is in Ad Hoc mode, select the *Peers* tab to display the BSSID or MAC addresses of the other terminals in the network, their operating mode (PSP or CAM), their transmit rate, their supported data rate and the length of time an

adapter has been out of the Ad Hoc network. Tap **Refresh** to update the *Peers* tab to the latest Ad Hoc network performance and terminal membership data.

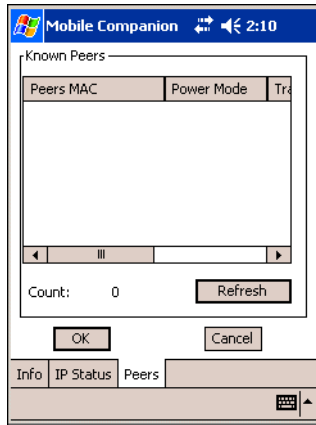


Figure 6-17. Mobile Companion - Peers Tab

Setting Options

Select *Options* from the Mobile Companion menu to access AP and Ad-Hoc networks, disable profile roaming and enable system sounds.

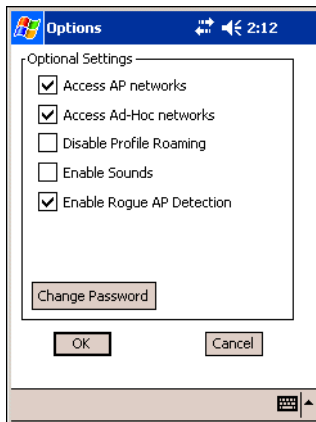
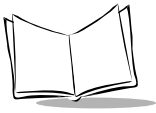


Figure 6-18. Mobile Companion - Option Settings



1. Select the *Access AP networks* check box to display available AP networks and their signal strength within the *Available WLAN Networks* window (see [Finding WLANs](#) on page 6-6). These are the APs available to the terminal profile for association. If this option was previously disabled, refresh the *Available WLAN Networks* window to display the AP networks available to the terminal.
2. Select the *Access Ad-Hoc networks* check box to display available peer (adapter) networks and their signal strength within the *Available WLAN Networks* tab. These are peers available to the terminal profile for association. If this option was previously disabled, refresh the *Available WLAN Networks* tab to display the Ad Hoc networks available to the terminal.
3. Select the *Disable Profile Roaming* checkbox to configure the adapter WLAN profile to not roam to the next available WLAN profile when the terminal moves out of range of the current WLAN profile.
4. Select the *Enable Sounds* check box to initiate an audible signal when performing a ping test and associating with an AP. The tones are important to notify users if the pinging is received or if the terminal has roamed to another AP.
5. Select *Rogue AP Detection* to inform the system of unauthorized APs on the network.

Note: *Mobile Companion has a password protection feature. When Mobile Companion initially displays, the password is off by default.*

6. To create a password, tap **Change Password**.

Figure 6-19. Mobile Companion - Change Password

7. Enter a case sensitive password (10 characters maximum) in the *Current Password* field and tap **OK**. To change the current password, enter the current password in the *Current Password* field and enter a new password in the *New Password* and *Confirm Password* fields and tap **OK**.

Changing Profiles

Select *WLAN Profiles* from the *Mobile Companion* menu to view, connect to, create and edit a profile. A completed profile is a set of adapter configuration settings that can be used in different locations to connect to a wireless network. Creating different profiles is a good way of having pre-defined operating parameters available for use in various network environments. When the *WLAN Profiles* window initially displays, existing profiles appear in the *WLAN Profiles* list box.

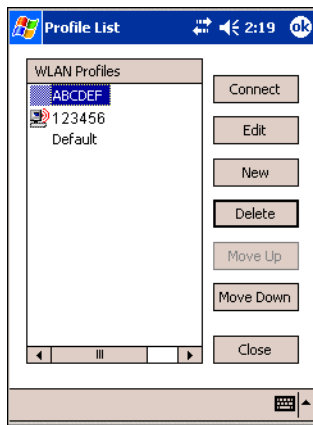
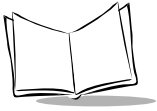


Figure 6-20. Mobile Companion - WLAN Profiles

Select a profile from the list box and tap **Connect** to set that profile as the active profile. The active profile displays the transmit and receive icon to the left. Once selected, the terminal is using the authentication, encryption, ESSID, IP Config and power consumption settings initially configured for that profile.

Editing a Profile

Select a profile from the list box and tap **Edit** to display the *Mode* tab where the ESSID and operating mode can be changed for the profile. Use the *Encryption*, *IP Config*, and *Power* tabs as necessary to edit the profile power consumption and security parameters.



Creating a New Profile

Tap **New** to display the *Mode* tab wherein the profile name and ESSID can be set. Use the *Encryption*, *IP Config* and *Power* tabs as required to set security, network address information and power consumption level for the new profile.

Deleting a Profile

Select a profile to delete from the list box and tap **Delete** to remove the selected profile.

Ordering Profiles

Select a profile from the list box and tap **Move Up** or **Move Down** to order the profile. If the current profile association is lost, Mobile Companion attempts to associate with the first profile in the list and then the next until a new association is achieved.

Configuring the Radio Using a Registration File

Default settings for the Spectrum24 radio card can be set on the terminal using registration (.reg) files. There are two registry files: Spectrum24DS.reg contains the global registry settings for Mobile Companion and S24Profiles.reg contains the profile specific and operating registry settings for Mobile Companion.

A sample S24Profiles.reg file is provided as part of the DCP for PPT 8800. Edit the file using a text editor. See notes in the sample file for the key information that can be modified.

Save this text file as S24PROFILES.REG. Use ActiveSync to copy this file to the *Platform* folder on the terminal. Once this file is loaded onto the terminal, these settings are restored after a hard reset.





Chapter 7

PPT 8860 Bluetooth

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Introduction

The PPT 8860 terminal provides Bluetooth communication with Bluetooth enabled devices such as phones, printers, access points (APs) and other terminals.

Turning Bluetooth On and Off

Turn off the Bluetooth radio to save power or if entering an area with radio restrictions (e.g., an airplane).

1. Tap the *Bluetooth* icon - *Turn Transmitter OFF*.

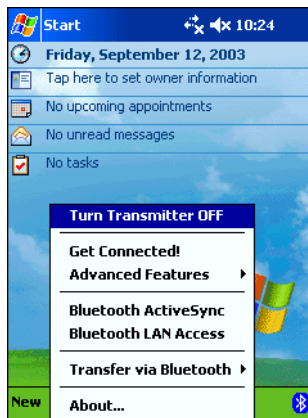
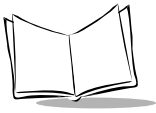


Figure 7-1. Bluetooth Menu - Turn Transmitter Off



2. The Bluetooth radio transmitter turns off. The Bluetooth icon becomes gray, as well as relevant menu options.

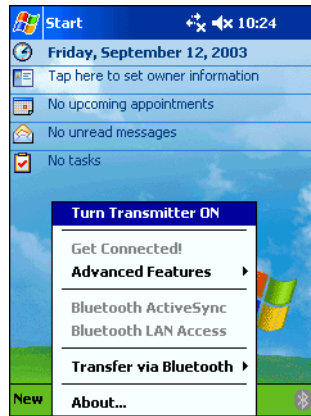


Figure 7-2. Bluetooth Menu - Turning Transmitter On

3. To turn the Bluetooth radio transmitter back on, tap the gray *Bluetooth* icon.
4. Select *Turn Transmitter ON*.

Note: When the terminal is placed in suspend mode, the Bluetooth radio turns off. When the terminal resumes, it takes approximately 10 seconds for the Bluetooth radio driver to re-initialize the radio.

Connecting to a Bluetooth Phone

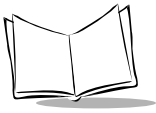
The Get Connected! Wizard guides you through a one-time setup process that prepares the terminal and a Bluetooth enabled phone for connection. The wizard varies depending on the phone.

Ericsson, Nokia 6210, NTT DoCoMo, Sony Phones

1. Tap the *Bluetooth* icon - *Get Connected!* The *Get Connected!* Wizard window appears.



Figure 7-3. Get Connected! Wizard Window



2. Tap **Next >**.

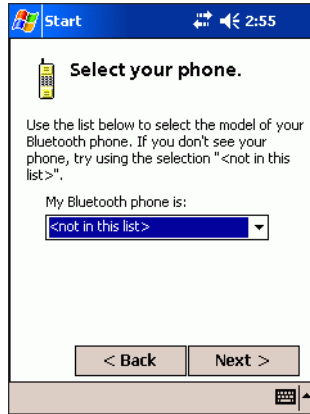


Figure 7-4. Select Your Phone Window

3. In the *My Bluetooth phone is:* drop-down list, select a Bluetooth phone. The wizard provides tailored instructions based on the selection. Tap **Next >**.
4. The next window(s) vary and provide instructions for preparing the phone for Bluetooth connections. Some or all of the following may need to be performed:
 - Naming the Bluetooth phone
 - Setting the Bluetooth phone in discoverable mode
 - Preparing a Bluetooth passkey.

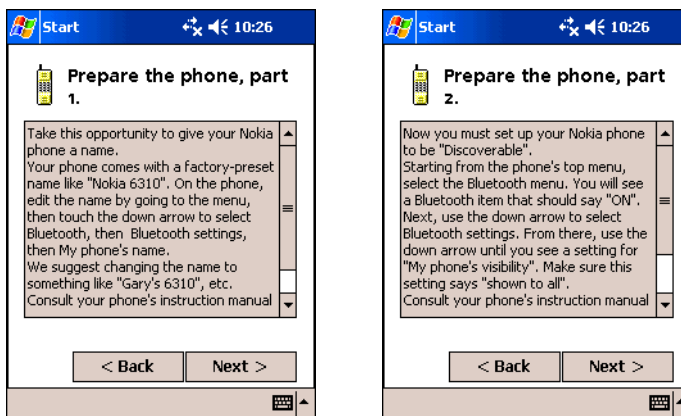


Figure 7-5. Get Connected! Wizard Windows

- Read the instructions and perform the task on the phone then tap **Next >**. The terminal searches for a Bluetooth phone. When the search is complete, a list of discovered Bluetooth phones appears.

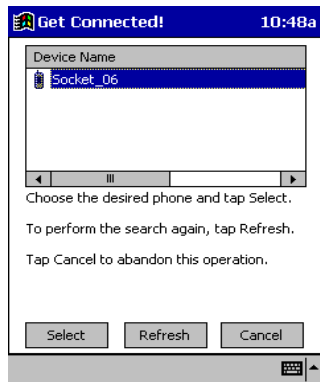
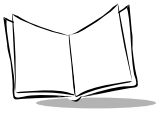


Figure 7-6. Get Connected! - Select Device Window

- Select the phone to connect to and tap **Select**. A service discovery phase begins which lasts for about 5 to 10 seconds.
- As prompted in the next window, prepare the phone for bonding. For instructions on setting the phone to “Bondable” or “Pairable” mode, refer to the phone’s user manual. Have the passkey ready, then tap **Next >**. The *Bluetooth Passkey* window appears.



Figure 7-7. Bluetooth Passkey Window



8. Enter the passkey. Tap **Reply**.
9. The phone may then either automatically accept the passkey or ask you to enter one. If prompted for a passkey, use the same one entered on the terminal.

Note: *Ericsson T68/T68i only: When the phone requests to bond, select 2: Add to paired devices. Do not tap ACCEPT.*

10. Tap **Finish**. After successfully connecting, the phone appears in the *Bluetooth Devices* folder. In the Today screen, the Bluetooth icon blinks.

Note: *You may also switch between different phones by assigning a new "favorite phone" in the Bluetooth Devices folder.*

Motorola Timeport 270C, Nokia 3650/6310/7650/8910/8910i

1. Tap the *Bluetooth* icon - *Get Connected!* The *Get Connected! Wizard* window appears.



Figure 7-8. Get Connected! Wizard Window

2. Tap **Next >**.

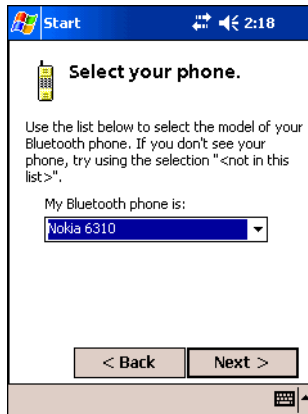


Figure 7-9. Select Your Phone Window

3. In the *My Bluetooth phone is* drop-down list, select a Bluetooth phone. The wizard provides tailored instructions based on the selection. Tap **Next >**.
4. The next window(s) vary and provide instructions for preparing the phone for Bluetooth connections. Some or all of the following may need to be performed:
 - Naming the Bluetooth phone.
 - Setting the Bluetooth phone in Discoverable mode.
 - Preparing a Bluetooth passkey.

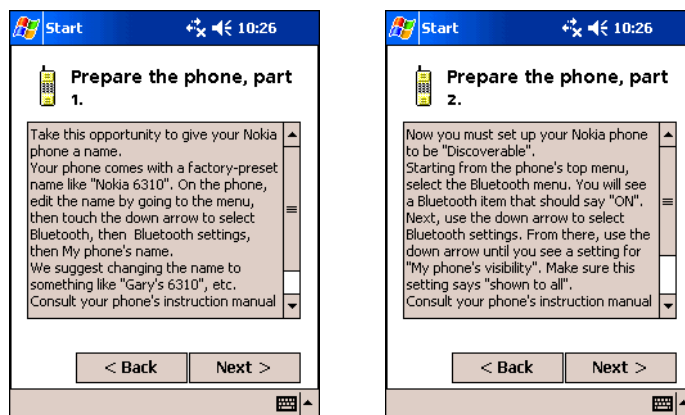
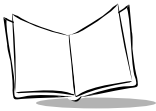


Figure 7-10. Get Connected! Wizard Windows



5. Read the instructions and perform the task on the phone. Tap **Next >**. The terminal searches for a Bluetooth phone. When the search is complete, a list of discovered Bluetooth phones appears.

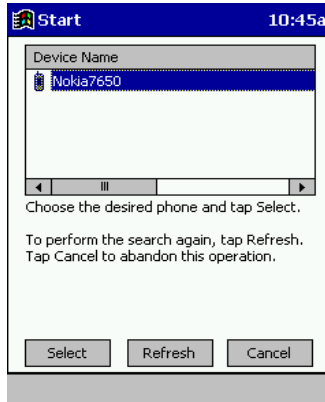


Figure 7-11. Get Connected! - Select Device Window

6. Select the phone to connect to and tap **Select**. A service discovery phase begins which lasts for about 5 to 10 seconds.
7. The next two screens describe procedures you can only complete after the wizard is completed. Read through each screen but do not complete the described procedures until you exit the wizard.
8. Continue to the last screen of the wizard and tap **Finish**. See [Bonding with Discovered Device\(s\)](#) on page 7-18 to complete the bonding process and, if desired, set up automatic connections.

Bluetooth Configuration

The terminal uses a Bluetooth radio to communicate with other Bluetooth enabled devices and must be set up properly to do so. This section provides instructions for setting up the terminal to enable, find and communicate with other devices.

Configuring the Terminal

To configure the PPT 8860:

1. Tap the *Bluetooth* icon - *Advanced Features* - *My Bluetooth Device*. The *Device Manager* window appears.

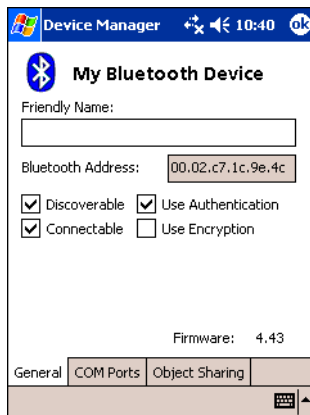


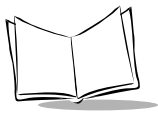
Figure 7-12. Device Manager - General Tab

2. In the *Friendly Name* field, enter a name for the terminal.

Note: *In normal phone connect operation, Discoverable mode is not needed and should be disabled. If you do enable Discoverable mode (e.g., for ActiveSync), note that it does not shut off by itself. To save power, disable it when not needed.*

3. Select the *Discoverable* checkbox to make the terminal discoverable by other Bluetooth devices.

Note: *Connectable, Use Authentication, and Use Encryption are also not required for printing or dial-up networking applications.*



4. Select the *Connectable* checkbox to enable other Bluetooth device to connect to the terminal.
5. Select the *Use Authentication* checkbox to enable other Bluetooth device to connect to the terminal.

Note: Check *Use Authentication* to enable the *Use Encryption* option.

6. Select the *Use Encryption* checkbox to enable other Bluetooth device to connect to the terminal.
7. Tap **ok**.

Assigning COM Ports

To communicate with Bluetooth phones, printers, APs, computers and FAXs, the appropriate COM ports must be enabled.

1. Tap *Bluetooth* icon - *Advanced Features* - *My Bluetooth Device*. The *Device Manager* window appears.

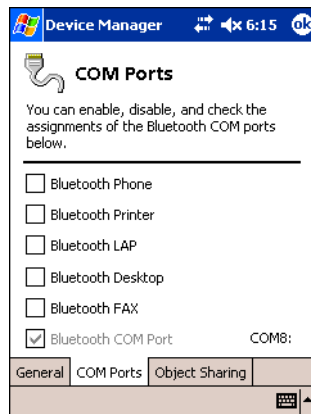


Figure 7-13. Device Manager - COM Ports

2. Tap the *COM Ports* tab.

Note: The *Bluetooth COM* port cannot be disabled. To free *COM* ports, disable *IrDA* *COM* ports, see [IrDA](#) on page 3-39.

3. As required, enable or disable the Bluetooth COM port assignments.

4. Tap **ok**.

Object Sharing

Use the *Object Sharing* tab to set the default directory for storing files to share with other devices and for setting a contact for exchanging business cards.

1. Tap *Bluetooth* icon - *Advanced Features* - *My Bluetooth Device* - *Object Sharing* tab.

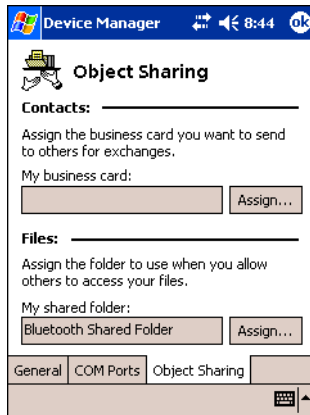
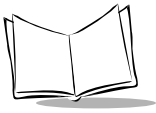


Figure 7-14. Device Manager - Object Sharing Tab

2. See [Exchange Business Cards](#) on page 7-46 for information on exchanging business cards.



3. To assign a folder for access by other devices, tap the Assign next to the *My Shared Folder:* field. The *Add/Delete Folders* window appears.

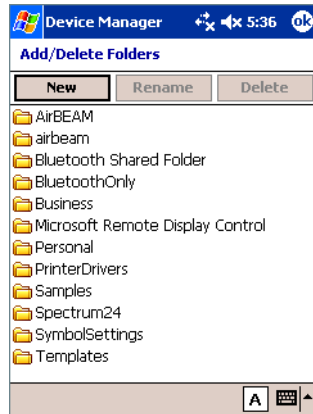


Figure 7-15. Add/Delete Folders Window

4. Select a folder or tap **New** to create a new folder.
5. Tap **ok**.
6. Tap **ok**.

Discovering Bluetooth Device(s)

Use the *Bluetooth Device Discovery* wizard to discover other Bluetooth devices nearby. The *Bluetooth Device Discovery* wizard is a more detailed alternative to using the *Bluetooth "Get Connected!" Wizard*, Bluetooth ActiveSync or Bluetooth LAN Access options.

1. Tap the *Bluetooth* icon - *Advanced Features* - *Bluetooth Devices*. The *Bluetooth Devices* window appears.

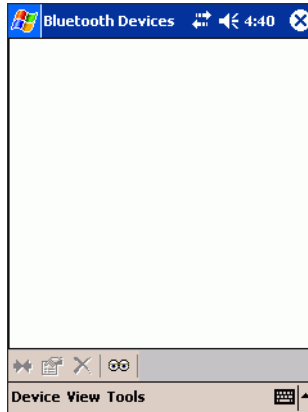
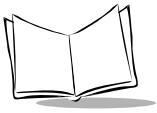


Figure 7-16. Bluetooth Devices Window

2. Select *Tools* - *Device Discovery*. The *Discovery* window appears.



Figure 7-17. Bluetooth Device Discovery Window



3. Tap **Next >**.
4. Select the device type to search for.

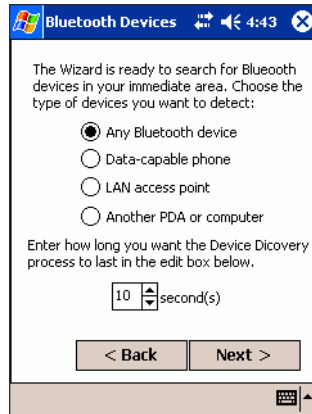


Figure 7-18. Select Bluetooth Device to Search For

5. Tap **Next >**.
6. The terminal searches for Bluetooth devices in the area.

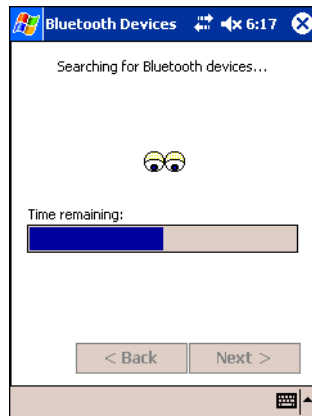


Figure 7-19. Searching for Bluetooth Devices

7. When the search is complete, a window appears listing the discovered Bluetooth devices.

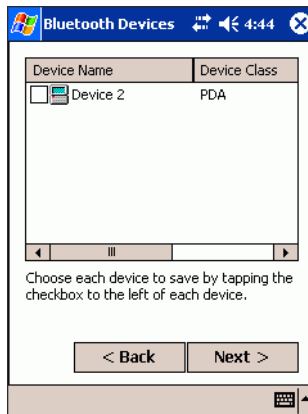


Figure 7-20. Discovered Bluetooth Devices

8. Select the checkbox next to the device(s).
9. Tap **Next** >.
10. A service discovery phase begins, which last about 5 to 10 seconds per chosen device. When completed the *Congratulations!* window appears.

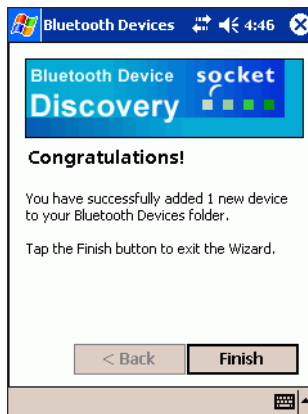


Figure 7-21. Bluetooth Device Discovery Congratulations Window

11. Tap **Finish**.



Bonding with Discovered Device(s)

Follow these steps to bond with an already discovered Bluetooth device. In most cases, bonding is for establishing secure communications with a Bluetooth-enabled phone. This is a more detailed alternative to using the Bluetooth Get Connected! Wizard.

Caution

Do not bond with a Motorola Timeport 270C or Nokia 6310 phones.
Do not use this method to bond with a printer.

1. Tap the *Bluetooth* icon - *Advanced Features* - *Bluetooth Devices*.

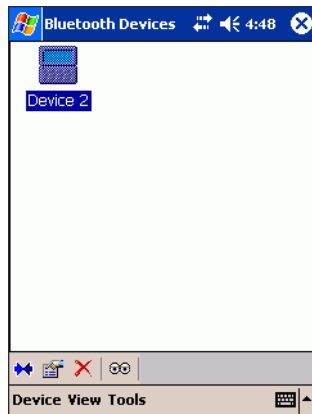


Figure 7-22. Bluetooth Devices Window

2. Tap and hold the device icon to bond with. In the pop-up menu, select *Bond*.

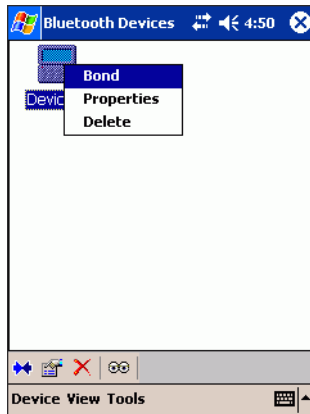


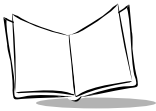
Figure 7-23. Bonding a Device

3. Select *Device - Bond*. The *Bluetooth Device Bonding* window appears.



Figure 7-24. Bluetooth Bonding Window

4. Tap **Next >**.



Note: Ensure that the Bluetooth device you want to bond with is in Bondable mode. Refer to the device's user documentation.

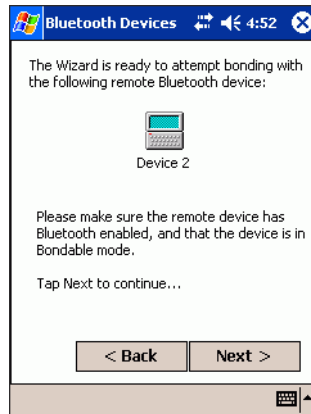


Figure 7-25. BT Device Manager Window

5. Tap **Next >**.
6. If the remote device is set up to accept bonding, a *Bluetooth Passkey Required* window appears.



Figure 7-26. Password Required Window

7. In the *Bluetooth passkey:* field, enter the passkey.
8. Tap **Reply**.
9. If required, enter the passkey on the other Bluetooth device.
10. When you have successfully bonded with the other device, tap **Finish**.

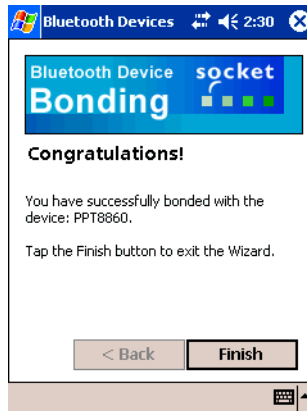
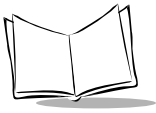


Figure 7-27. Bonding Complete Window



View Device Properties

To view the properties of an already discovered device:

1. Tap the *Bluetooth icon - Advanced Features - Bluetooth Devices*. The *Bluetooth Device* window appears.

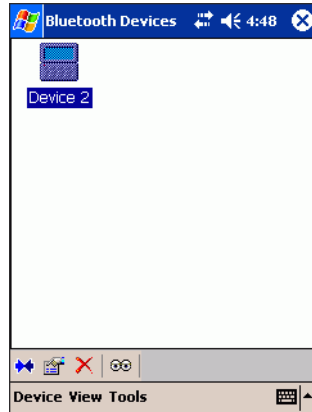


Figure 7-28. Bluetooth Device Window

2. Select a device. Tap the *Properties* icon, or tap *Device - Properties*. Alternatively, you can tap and hold the stylus on the Bluetooth device you want to view information about. In the pop-up menu, select *Properties*.

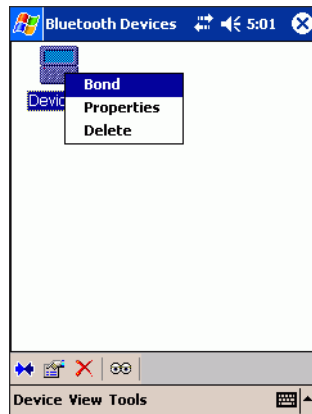


Figure 7-29. Device Properties

3. The *Bluetooth Devices Property* window appears.

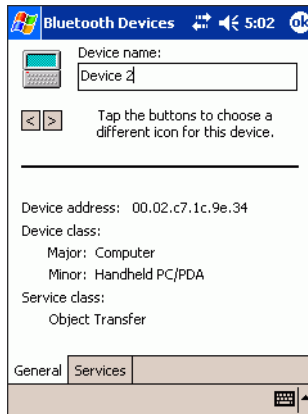
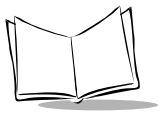


Figure 7-30. Bluetooth Devices Property Window

4. Use the *General* and *Services* tabs to view device properties.
5. If needed, assign a new device type icon by tapping on the arrow buttons in the *General* tab. You can also use the *Device name* field to rename the device. When done, tap **ok** for the setting to take effect.



Setting Up A Favorite Device

To set up default devices in the *Bluetooth Devices* folder:

1. Tap the *Bluetooth icon - Advanced Features - Bluetooth Devices*.
2. Select *Tools - My Favorites*. The *My Favorites* window appears.



Figure 7-31. My Favorites Window

Note: *Tabs appear only for COM ports you have enabled. To enable a port, see [Assigning COM Ports](#) on page 7-12.*

3. Tap the tab for the type of device you would like to set a favorite for. If needed, use the arrow buttons to scroll and find the tab you need.
4. To select a favorite device, select *Use the favorite selected above* radio button.
5. In the drop-down list, select your device.
6. Tap **ok**. After setting a device as your favorite, its icon appears in the *Bluetooth Devices* window with a heart next to it.

Change Views

To switch between the large icons or details views in the *Bluetooth Devices* window:

1. Tap the *Bluetooth icon - Advanced Features - Bluetooth Devices*.

2. Select *View*. Choose between *Large Icons* or *Details*.

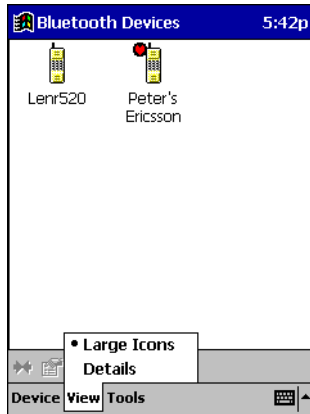


Figure 7-32. Large Icons View

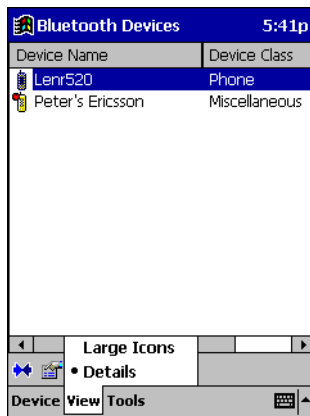
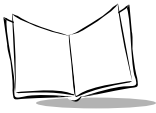


Figure 7-33. Details View

Note: In *Details* view, scroll right to see the current *Bonded* status.



Deleting a Device

If you no longer plan to connect with a device, delete it from the *Bluetooth Devices* window.

1. Tap the *Bluetooth icon - Advanced Features - Bluetooth Devices*.
2. Tap and hold the device to delete. In the pop-up menu, select *Delete*.

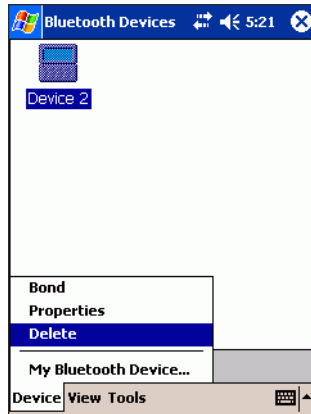


Figure 7-34. Delete Device

3. Alternatively, after selecting a device, tap the *Delete* icon or tap *Device - Delete*.
4. A confirmation dialog appears. Tap **Yes**.

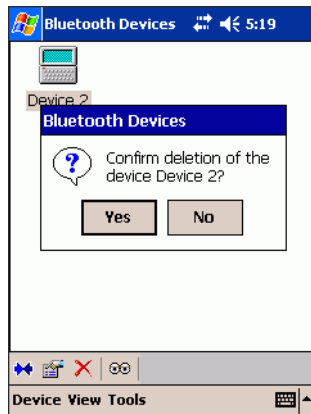


Figure 7-35. Delete Device Confirmation Dialog Box

Bluetooth Communications

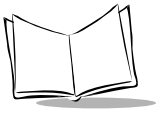
Dial-up to Your Network

Complete the following steps to create a new Bluetooth connection. Before setting up dial-up networking, obtain dial-up information and other necessary settings for your office network or ISP.

1. Tap *Start - Settings - Connections - Connections* icon. The Connections window appears.



Figure 7-36. Connection Window



2. Tap the *Advanced* tab.

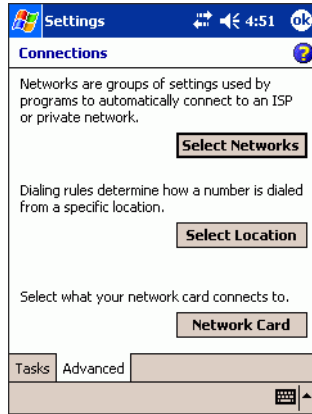


Figure 7-37. Connections - Advanced Tab

3. Tap **Select Networks**. The *Network Management* window appears.

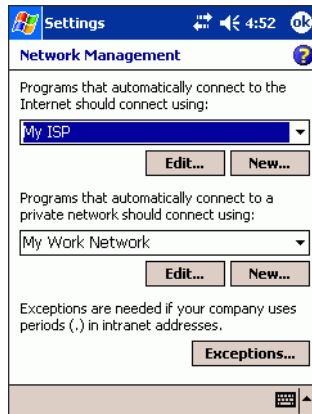


Figure 7-38. Network Management Window

4. In the top drop-down list, select *My ISP*.
5. In the bottom drop-down list, select *My Work Network*.
6. Tap **ok**.
7. Tap *Task* tab.

8. Tap *Add a new modem connection* under *My ISP*. The *Make New Connection* window appears.



Figure 7-39. Make New Connection Window

9. In the *Enter a name for the connection:* field, enter a name, such as *ISP via Bluetooth*.
10. In the *Select a modem:* field, select *Bluetooth Phone*.
11. Tap **Next**.

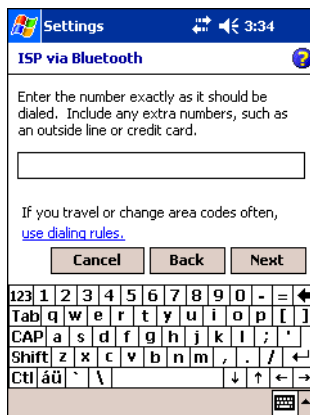
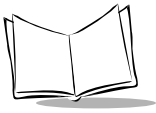


Figure 7-40. Enter Dial-Up Number



12. Enter the dial-up number exactly how it should be dialed from your Bluetooth phone. Include the country and area code as required.
13. Tap **Next**.

Figure 7-41. My Connection Window

14. In the *User name:* field, enter your username.
15. In the *Password:* field, enter your password.
16. Tap **Advanced**. The *Advanced* window appears.

Figure 7-42. Advanced Window - General Tab

17. Tap the *General* tab.

18. In the *Baud Rate*: drop-down list, select *115200*.
19. Un-check the *Wait for dial tone before dialing* check box.
20. If your network uses DHCP, tap **ok**.
21. If you need to enter IP addresses, tap the *TCP/IP* and *Servers* tabs to enter the necessary settings. Tap **ok**.

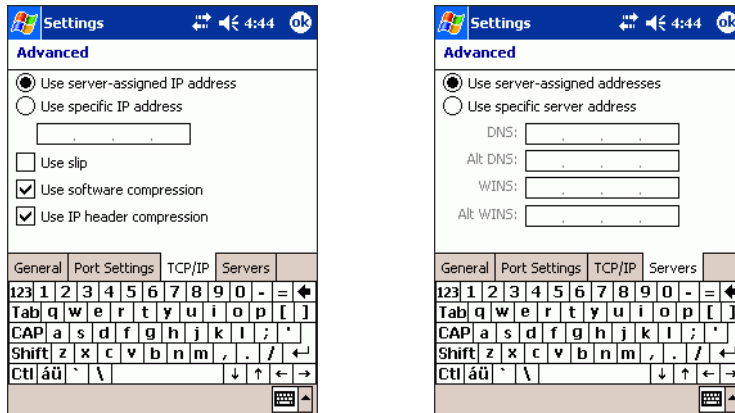
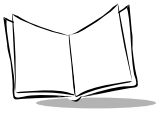


Figure 7-43. Advanced Window - TCP/IP and Servers Tabs

22. Tap **Finish**.
23. Tap the *Connection* icon in the navigation bar at the top of the screen. An “X” indicates that the terminal is not connected.



24. The *Connectivity* dialog box appears with the dial-up connection just created. Verify the phone number, then tap the phone number.

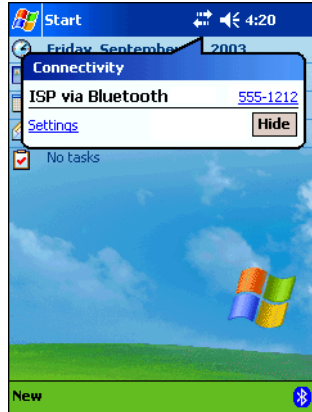


Figure 7-44. Connecting to a Bluetooth Phone

Note: Multiple connections may be listed. Tap on the phone number of the connection you want to dial.

*If the connection you want is not listed, tap on Settings. Tap Manage Existing Connections and select the connection you want to use. Tap **ok**.*

25. Depending on your phone and connection settings, you may need to enter a passkey and/or a password before the phone starts to dial.
26. If you have a Nokia 3650/6310/7650/8910/8910i or Motorola Timeport 270C, you must complete the bonding process:
- The first time you try to connect, the phone asks if you want to bond. On the Motorola phone, enter **GRANT**; on the Nokia phone, enter **ACCEPT**.
 - Enter a 4-16 digit passkey on the phone, then enter it on the terminal.
 - After successfully bonding with the phone, you may want to set up your phone for automatic connections. See [Automatic Connection](#) on page 7-44.

27. If you did not save the dial-up password, the *Network Log On* screen appears.

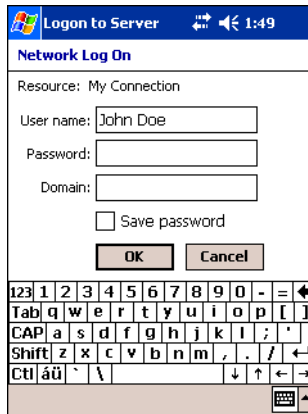


Figure 7-45. Network Log On Window

28. Enter the Password and tap **ok**.

29. The device begins dialing.

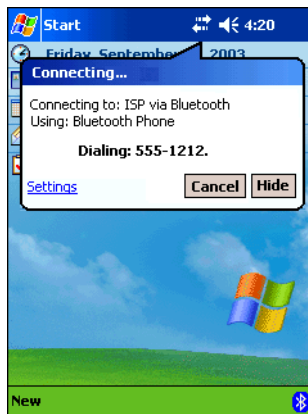
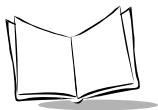


Figure 7-46. Dialing the Bluetooth Phone



Note: To use a different Bluetooth enabled phone for dial-up networking, you can use the same connection setup, but you must make the new phone your favorite. Run the Get Connected! Wizard again, select the new phone, and make it your new Favorite when prompted.

30. Alternatively, you can use the *Bluetooth Devices* folder to change your favorite phone (see [Setting Up A Favorite Device](#) on page 7-24).

Dial Automatically from the Application

Note: After you have set up a dial-up connection, the Connection Manager automatically tries to connect whenever you try to use Pocket Internet Explorer, Pocket Inbox, or any other program that uses a dial-up connection.

1. Start the program that uses a dial-up connection. Enter a request for receiving and/or transmitting information (e.g., in *Pocket Internet Explorer*, enter a new URL and tap “Go”). The terminal automatically tries to connect.
-

Note: If the phone number of dialing location is wrong, tap *Settings*. Tap *Manage Connections* and *Edit the properties of your connection*.

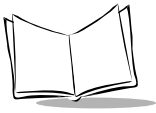
2. Depending on your phone and connection settings, you may need to enter a passkey and/or a password before the phone will start to dial:
3. If you have a Nokia 3650/6310/7650/8910/8910i or Motorola Timeport 270C, you must complete the bonding process:
 - a. The first time you try to connect, the phone asks if you want to bond. On Motorola, enter **GRANT**; on Nokia, enter **ACCEPT**.
 - b. Make up a 4-16 digit passkey, enter it on the phone, then enter it on the terminal.
 - c. After successfully bonding with your phone, you may want to set up your phone for automatic connections. See [Automatic Connection](#) on page 7-44 for instructions.
4. If you did not save the dial-up password, the *Network Log On* screen may appear. Enter the Password and tap **ok**.

5. When the terminal starts calling, you see the call status on both the terminal and phone display. After the terminal connects, it receives/transmits the information as requested (e.g., *Pocket Internet Explorer* displays the requested website).
6. To use a different Bluetooth enabled phone for dial-up networking, you can use the same connection setup, but you must make the new phone your favorite. Run the *Get Connected! Wizard* again, select the new phone, and make it your new Favorite when prompted.
7. Alternatively, you can use the *Bluetooth Devices* folder to change your favorite phone, see [Setting Up A Favorite Device](#) on page 7-24.

Bluetooth ActiveSync

This section explains how to use the Bluetooth ActiveSync option to quickly and easily ActiveSync to a Bluetooth enabled notebook or host computer with ActiveSync installed. The procedures vary depending upon if you:

- ActiveSync with a favorite computer
- ActiveSync with a discovered computer
- ActiveSync with an un-discovered computer.



Ensure that ActiveSync on the desktop is set to the proper com port. Determine what com port the Bluetooth device is set to on the desktop.

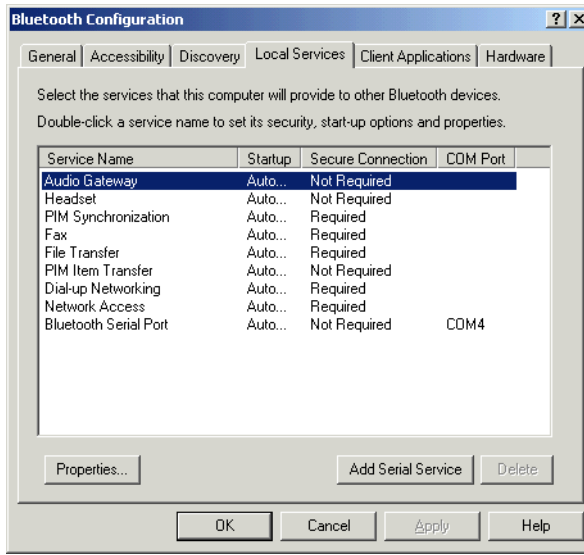


Figure 7-47. Sample Bluetooth Configuration Window

Set the com port in ActiveSync's *Connection Settings* window.

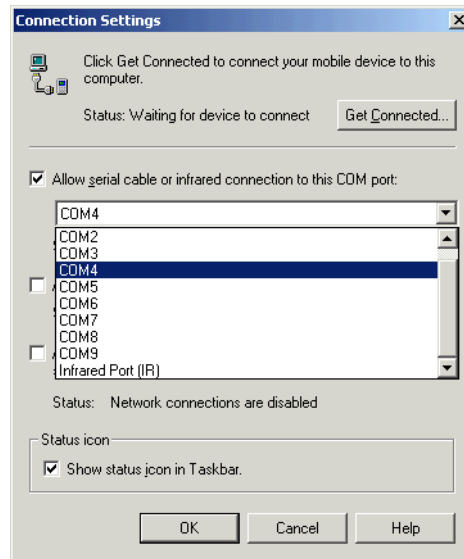


Figure 7-48. Connection Setting Window

ActiveSync with a Favorite Computer

To ActiveSync with a computer that the terminal discovered and is a favorite:

1. Tap *Bluetooth* icon - *Bluetooth ActiveSync*.
2. The terminal automatically tries to connect to the favorite computer.
3. The *Connect To* dialog appears, indicating that it is trying to connect to wireless ActiveSync.

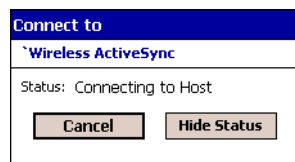
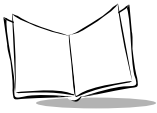


Figure 7-49. Connecting to Host



4. After a successful connection is made, the dialog indicates *Connected*.



Figure 7-50. Connected to Host

5. Now you are ready to synchronize files.

ActiveSync with a Discovered Computer

To ActiveSync with a computer that the terminal discovered but is not a favorite:

1. Tap *Bluetooth* icon - *Bluetooth ActiveSync*. The *Bluetooth Devices* window appears.

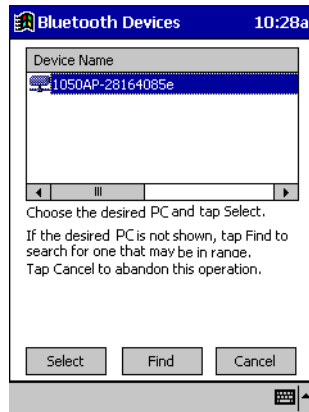


Figure 7-51. Bluetooth Devices Window

2. Choose a computer from the list and tap **Select**, or tap **Find** to search for another computer.

3. The terminal attempts to connect to the selected host computer.



Figure 7-52. Connecting to Host

4. After a successful connection is made, the status dialog indicates *Connected*.

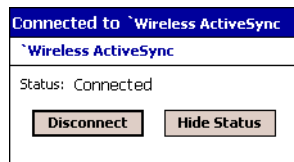


Figure 7-53. Connected to Host

5. Now you are ready to synchronize files.

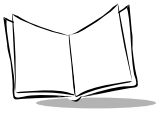
ActiveSync with Undiscovered Computer

To ActiveSync with a computer that the terminal has not discovered:

1. Tap *Bluetooth* icon - *Bluetooth ActiveSync*. A Bluetooth device search automatically begins.



Figure 7-54. Searching for Bluetooth Devices



2. Choose a computer from the list and tap **Select**. If the computer is not listed, make sure the computer is discoverable and tap **Refresh** to search again.

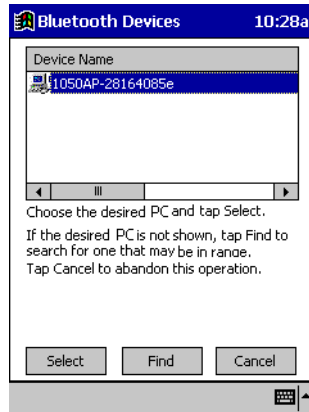


Figure 7-55. Select ActiveSync Device

3. The service discovery phase begins.
4. The terminal attempts to connect to the selected host computer.

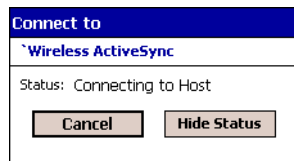


Figure 7-56. Connecting to Host

5. After a successful connection is made, the status dialog indicates *Connected*.



Figure 7-57. Connected to Host

6. Now you are ready to synchronize files.

Bluetooth LAN Access

This section explains how to use the Bluetooth LAN access feature to quickly and easily connect to a Bluetooth-enabled LAN access point. The procedures vary depending upon if you:

- Connect with a favorite AP
- Connect with a discovered AP
- Connect with an un-discovered AP.

Connecting to a Favorite Access Point

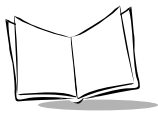
To communicate with a favorite AP:

1. Tap the *Bluetooth* icon - *Bluetooth LAN Access*. A screen appears that allows you to choose which AP to connect to in your *Bluetooth Devices* folder.



2. Choose an AP from the list and tap **Select**.
3. If you would like to save the new AP to your *Bluetooth Devices* manager, check *Save selection for future use*.

Note: *If your AP is not listed, tap Find and follow the instructions provided in [Connecting to an Undiscovered Access Point](#) on page 7-43.*



4. Your terminal tries to connect to the selected AP.

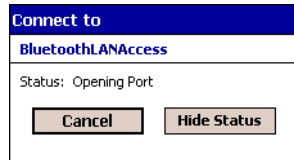


Figure 7-58. Connecting to LAN

5. If your LAN requires a passkey, a screen appears, asking for the passkey. Enter the passkey, then tap **ok**.
6. After a successful connection is made, the dialog box indicated *Connected*.

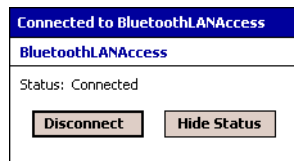


Figure 7-59. Connected to LAN

7. You are now ready to access your LAN for Internet and file access.

Connecting to a Discovered Access Point

To communicate with an AP that the terminal discovered but is not a favorite:

1. Tap the *Bluetooth* icon - *Bluetooth LAN Access*.
2. The terminal tries to connect automatically to the favorite AP.

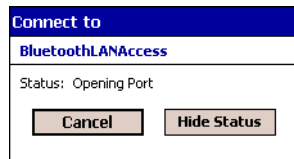


Figure 7-60. Connecting to Favorite LAN

3. A screen appears that allows you to choose which AP to connect to in your *Bluetooth Devices* folder.

4. If your LAN requires a passkey, a screen appears, asking for the passkey. Enter the passkey, then tap **ok**.
5. After a successful connection is made, the dialog box indicated *Connected*.



Figure 7-61. Connected to LAN

6. You are now ready to access your LAN for Internet and file access.

Connecting to an Undiscovered Access Point

To connect to an AP that the terminal has not discovered:

1. Tap the *Bluetooth* icon - *Bluetooth LAN Access*.
2. The terminal automatically searches for new Bluetooth devices.

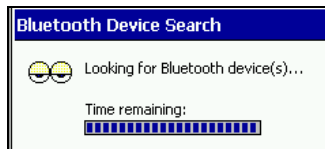
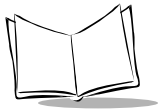


Figure 7-62. Searching for Bluetooth Devices

3. After the search is complete, select the AP you wish to connect to.



4. Tap **Select**. If the AP is not listed, tap **Refresh** to search again.

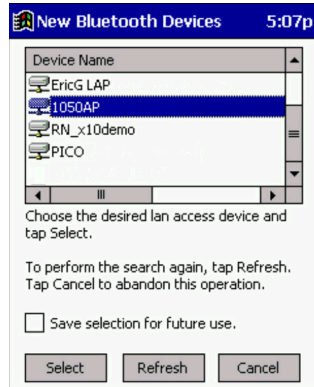


Figure 7-63. New Bluetooth Devices Window

5. A service discovery phase begins.
6. If the LAN requires a Passkey, a screen appears, asking for the Passkey. Enter the passkey, then tap **ok**.
7. After a successful connection is made, the screen indicates *Connected*.



Figure 7-64. Connected to LAN

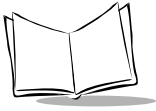
8. Now you are ready to access your LAN for Internet access, files, etc.

Automatic Connection

Some Bluetooth enabled phones let you set up automatic connections with devices they have successfully bonded with, without requiring you to manually enter a password every time you try to connect. To set up automatic connections between your phone and your terminal, follow the appropriate instructions below for your specific phone.

1. Motorola Timeport 270C:
 - a. On the phone, press **MENU**.
 - b. Scroll to *Settings*, then press **SELECT**.

- c. Scroll to *Connection*, then press **ON**.
 - d. On *Bluetooth Link*, press **SELECT**.
 - e. Scroll to *Devices*, then press **SELECT**.
 - f. Choose your terminal, then press **EDIT**.
 - g. Scroll to *Access:Ask*, then press **CHANGE**.
 - h. Scroll to *Automatic*, then press **SELECT**. Press **DONE**.
2. Nokia 3650/7650:
- a. On the phone, press **MENU**.
 - b. Scroll to *Connectivity*, then press **Options**.
 - c. The *Open* option should be highlighted. Press **Select**.
 - d. The *Bluetooth* option should be highlighted. Press **Options**.
 - e. The *Open* option should be highlighted. Press **Select**.
 - f. Scroll to the right tab to access the *Paired* devices list. Highlight your terminal, then press **Options**.
 - g. Scroll to *Set as authorised*, then press **Select**.
 - h. In the confirmation screen, press **Yes**.
3. Nokia 6310/8910/8910i:
- a. On the phone, press **MENU**.
 - b. Scroll to *10 Bluetooth*, then press **SELECT**.
 - c. Scroll to *4 View Paired Devices*, then press **SELECT**.
 - d. Highlight the *Pocket PC*, then press **OPTIONS**.
 - e. Scroll to *3 Request Connection Authorization*, then press **NO**.



Socket OBEX

This section explains how to use the Socket object exchange (OBEX) application to trade files with another Bluetooth device that supports OBEX.

The OBEX application supports:

- exchanging business cards
- sending a contact
- sending a file
- browsing remote devices
- receiving a contact or file
- enabling file sharing.

The first four operations - exchange business cards, send a contact, send a file, and browse remote device - are client-oriented. They involve initiating an object exchange. The last two operations are server-oriented and involve accepting objects in an exchange initiated by another Bluetooth device.

Exchange Business Cards

1. Ensure both Bluetooth devices have a business card assigned to it.

Note: *If each device does not have a business card assigned to it, you cannot exchange business cards.*

2. To assign a business card to your terminal:
 - a. Tap the *Bluetooth* icon - *Advanced Features* - *My Bluetooth Device*. The *Device Manager* window appears.

- b. Tap the *Object Sharing* tab.

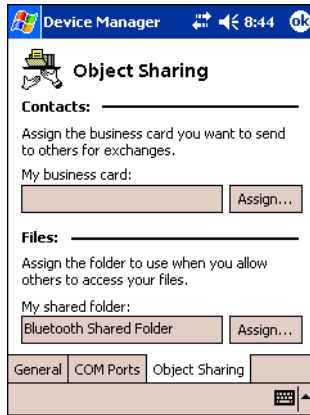


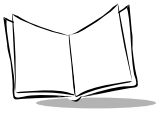
Figure 7-65. Device Manager - Object Sharing Tab

- c. Under *My business card*, tap **Assign...** The *My Business Card* window appears.



Figure 7-66. My Business Card Window

- d. Select your business card and tap **ok**.
- e. If your business card is not listed, tap on **Contacts** to create one. When you return to the Object Sharing screen, tap **ok**.
3. Ensure the other Bluetooth device is set up to receive a contact. The device must support the OBEX Object Push profile.
4. Tap the *Bluetooth* icon - *Transfer via Bluetooth - Exchange Business Cards*.



5. If your terminal does not have a device in the *Bluetooth Devices Folder*, it begins to search for Bluetooth devices nearby.
6. Select the Bluetooth device you wish to exchange business cards with. If the device is not listed, tap **Find**.

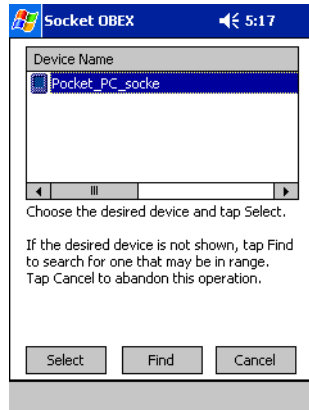


Figure 7-67. Socket OBEX Window

7. The terminal begins to exchange business cards.



Figure 7-68. Exchanging Business Cards

8. After the exchange, the new business card appears in your Contacts list.

Send a Contact

1. Ensure the other Bluetooth device is set up to receive a contact.
2. Tap *Start - Contacts*. The *Contacts* window appears.
3. Tap and hold the contact(s) you want to send. In the pop-up menu, select *Send Via Bluetooth*.

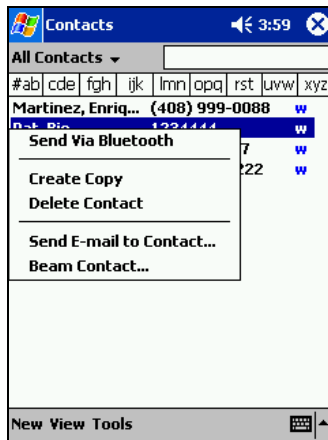


Figure 7-69. Contact Window

4. If your mobile computer has no devices in the Bluetooth Devices folder, then it begins to search for Bluetooth devices nearby.

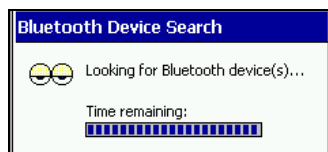
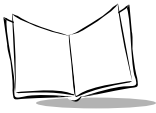


Figure 7-70. Searching for Bluetooth Devices



5. Select the Bluetooth device you wish to send the contact(s) to. If the desired device is not listed, tap **Find**.

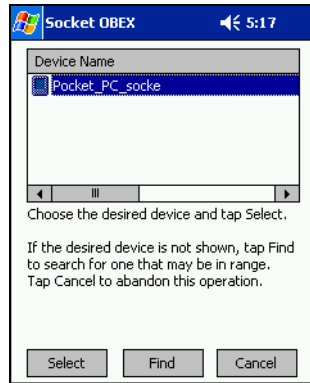


Figure 7-71. Socket OBEX Window

6. Your terminal processes and sends the contact(s).



Figure 7-72. Sending Contact Information

Sending a File

To send a file to another Bluetooth device:

1. Ensure the other Bluetooth device is set up to receive a file.
2. Tap the *Bluetooth* icon - *Transfer via Bluetooth* - *Send a File*.
3. If your terminal does not have a device in the *Bluetooth Devices Folder*, it begins to search for Bluetooth devices nearby.
4. Select the Bluetooth device you wish to send a file and tap **Select**. If the desired device is not listed, tap **Find**.

5. The *Open* window appears.

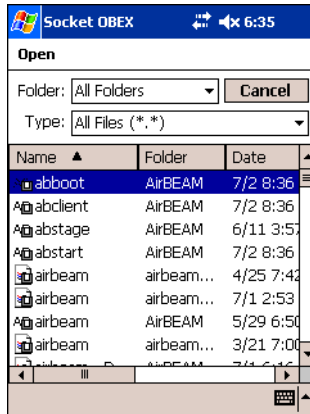


Figure 7-73. Open Window

6. In the *Folder* drop-down list, select the folder where the file resides.
7. In the file list, tap the file to send.
8. The terminal sends the file to the other Bluetooth device.

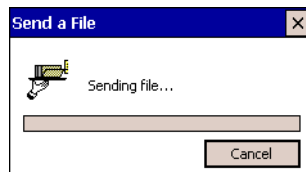


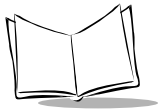
Figure 7-74. Sending a File

Browse Remote Device

The Bluetooth File Explorer enables the terminal to share files with another Bluetooth device. The other device must support the OBEX File Transfer server profile.

This section covers the following file transfer operations:

- Prepare for file transfer
- Send/receive file(s) or folder(s)
- Create a folder
- Delete file(s) or folder(s)



- Refresh remote view
- Connect/disconnect
- Exit the program.

Note: “Local device” refers to the terminal you are running the Socket OBEX from. “Remote device” refers to the Bluetooth device you are trying to transfer files with.

Prepare for File Transfer

1. Ensure the remote device has file sharing enabled. It must support the OBEX File Transfer server profile.
2. Tap the *Bluetooth icon - Transfer via Bluetooth - Browse Remote Device*.
3. If the terminal has no devices in the *Bluetooth Devices* folder that supports OBEX File Transfer, then it begins to search for Bluetooth devices nearby.
4. Select the Bluetooth device you wish to browse and tap **Select**. If the desired device is not listed, tap **Find**.

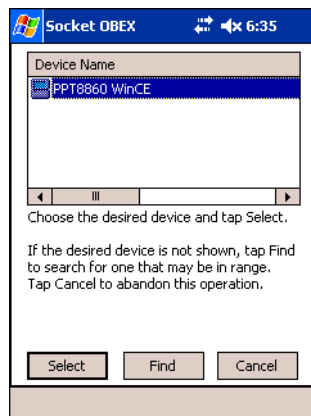


Figure 7-75. Finding Bluetooth Devices

5. The terminal begins to establish a file sharing connection.

6. After the devices successfully connect, the *Bluetooth File Explorer* appears.

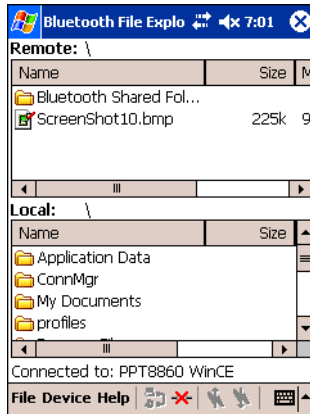


Figure 7-76. Bluetooth File Explorer Window

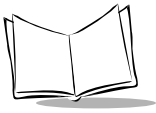
7. Half of the window shows contents of the remote device, while the other half shows contents of your terminal (the local device). The very bottom of the window displays the connection status.

Note: *A copy of the selected items will be transferred, not the original.*

Send or Receive a File or Folder

Select the file or folder that you wish to transfer. You can only select items from one device per transfer session.

1. Tap items for transfer. (Double-tap a folder to open it.)
2. There are two different ways to initiate a transfer.
 - a. Select *File - Send to remote* or *Get from remote*, as applicable. The inappropriate option should be gray.
 - b. Tap the *Send to remote* icon or *Get from remote icon*, as applicable. The inappropriate icon should be gray.
3. A dialog box reports the status of the transfer.
4. After the transfer, a copy of each selected item appears in the other device.



Create a Folder

To create a folder:

1. Select *File - Remote device* or *Local device*.

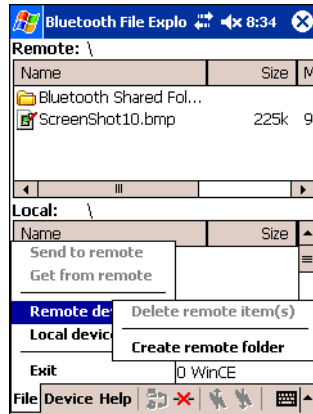


Figure 7-77. Create Folder

2. Select *Create remote folder* or *Create local folder*, as applicable.
3. Enter a name for the new folder.



Figure 7-78. Create New Folder

4. Tap **ok**.

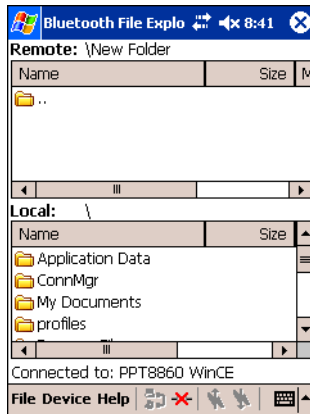


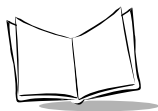
Figure 7-79. New Folder in File Explorer

5. The new folder should be listed under the appropriate device.

Delete a File or Folder

To delete a file or folder:

1. Select item(s) that you wish to delete. You can only delete item(s) from one device at a time.



2. Select *File - Remote device* or *Local device*, wherever the item(s) are located, then select *Delete remote item(s)* or *Delete local item(s)*, as applicable.

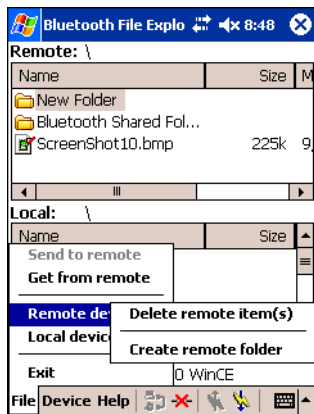


Figure 7-80. Delete a File or Folder

3. In the *Confirm* dialog, tap **Yes**.

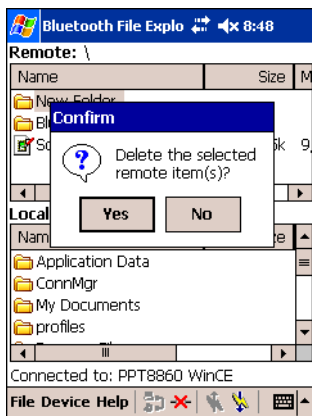


Figure 7-81. Confirm File or Folder Deletion

Refresh Remote View

1. Select the *Device* - *Refresh remote view*.

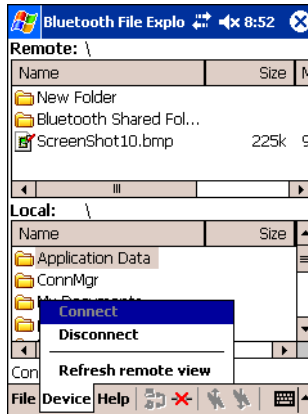


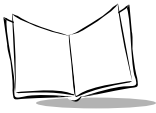
Figure 7-82. Refresh Remote View

2. Your local device reads the contents of the remote device.
3. After a few seconds, the view of the contents of the remote device refreshes.

Connecting or Disconnecting to a Remote Device

To connect to the remote device:

1. Ensure the remote device has file sharing enabled.



2. Select *Device - Connect* or tap the *Connect* icon.

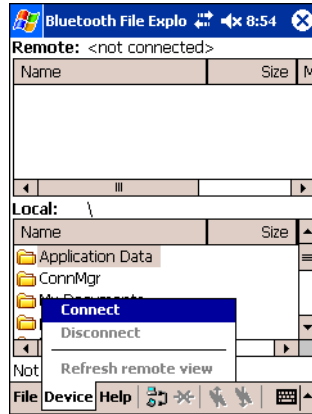


Figure 7-83. Connecting to a Remote Device

3. Select the device to connect to. Tap **Select**. The terminal attempts to connect to the selected device.

To disconnect from the remote device:

1. Select *Device - Disconnect* or tap the *Disconnect* icon.

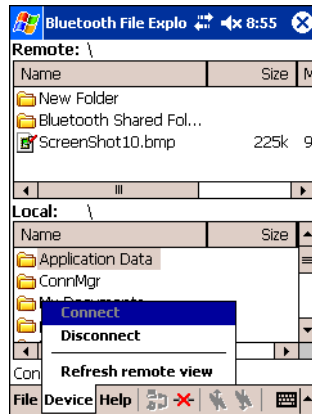


Figure 7-84. Disconnecting from a Remote Device

2. The terminal disconnects from the remote device. No contents is listed in the remote device area.

Exit Bluetooth File Explorer

To exit the *Bluetooth File Explorer*, select *File - Exit*.

Receive Contact or File

To receive a file or contact from another Bluetooth device:

1. Tap the *Bluetooth* icon - *Transfer via Bluetooth - Receive Contact or File*.
2. The *Receive Contact* or *File* status screen appears. Your mobile computer will wait two minutes for the contact or file.
3. After successfully connecting to the remote device, the screen indicates that it is connected then disappear after the file is transferred. The new contact or file is now on the terminal.
4. If two minutes passes before you receive the item, tap **Wait Again**.

Enable File Sharing

To enable file sharing:

1. Tap the *Bluetooth* icon - *Transfer via Bluetooth - Enable File Sharing*. The Enable File Sharing status screen appears.

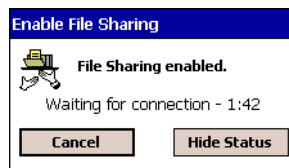
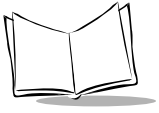


Figure 7-85. Enable File Sharing Window

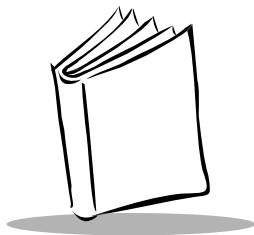
2. The terminal waits two minutes for the remote device to connect.
3. After successfully connecting to the remote device, the screen reports *Connected*.
4. If two minutes passes before you connect, tap **Wait Again**.
5. File sharing is enabled until you tap **Cancel**.



Bluetooth Printing

Printing to a Bluetooth printer requires a print-enabled application to be installed on the terminal. To print to a printer:

1. Ensure that the terminal's COM port for printing is enabled. See [Assigning COM Ports](#) on page 7-12.
2. Ensure that a Bluetooth printer has been discovered. See [Discovering Bluetooth Device\(s\)](#) on page 7-15.
3. Set the printer as the terminal's default printer. See [Setting Up A Favorite Device](#) on page 7-24.
4. Open a printer application and print.

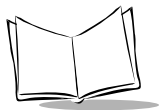


Chapter 8

PPT 8866 Bluetooth

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Introduction

Bluetooth-equipped devices can communicate without wires, using frequency-hopping spread spectrum (FHSS) RF to transmit and receive data in the 2.4 GHz Industry Scientific and Medical (ISM) band (802.15.1). Bluetooth wireless technology is specifically designed for short-range (30 feet/10 meters) communications and low power consumption.

Terminals with Bluetooth capabilities can exchange information (e.g., files, appointments and tasks) with other Bluetooth enabled devices such as phones, printers, access points and other terminals. In addition, a dial-up modem connection can be created between the Bluetooth terminal and a Bluetooth enabled phone. The Bluetooth phone can then be used as a modem.

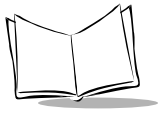
Symbol terminals with Bluetooth technology use the Microsoft Bluetooth stack. To program Bluetooth within the terminal see the Microsoft Embedded Visual C++ help.

Turning the Bluetooth Radio Mode On and Off

Turn off the Bluetooth radio mode to save power or if entering an area with radio restrictions (e.g., an airplane). When the mode is off, the terminal can not be seen or connected to by other Bluetooth devices. Turn on the Bluetooth radio mode to exchange information with other Bluetooth devices (within range). Communicate only with Bluetooth radios in close proximity.

Note: *In Symbol PPT 8866 terminals with Bluetooth Extension Version 3.2 (see [Figure 3-25 on page 3-32](#)), only one radio can be on at a time. Bluetooth can not be used when 802.11b is in use. To enable simultaneous mode, Bluetooth Extensions Version 3.3 or greater is required. For information about Spectrum24, see [Chapter 5, Spectrum24 Network Configuration \(V 3.9.1\)](#) or [Chapter 6, Spectrum24 Network Configuration \(V 3.9.2\)](#).*

To achieve the best battery life in terminals with multiple radios, turn off the radios that are not being used. Turn off the Spectrum24 radio via the *Wireless Adapter Control* applet in the *Settings* window, see [Wireless Adapter Control](#) on page 3-61. Turn off the Bluetooth radio see [Turning the Bluetooth Radio Mode Off](#) on page 8-5.



Bluetooth Power States

Cold Boot

When a cold boot is performed on the terminal, Bluetooth turns off after initialization (which takes a few moments). It is normal to see the *Bluetooth* icon appear and disappear, as well as a wait cursor, when initialization proceeds in all modes.

Warm Boot

When a warm boot is performed on the terminal, Bluetooth returns to the last state after initialization.

Suspend

When the terminal suspends, Bluetooth turns off.

Note: *When the terminal is placed in suspend mode, the Bluetooth radio mode powers off and the piconet (Bluetooth connection) is dropped (see [Table 13-2 on page 13-13](#) for more information). When the terminal resumes, it take approximately 10 seconds for the Bluetooth radio driver to re-initialize the radio.*

Resume

When the terminal resumes, Bluetooth turns on if it was on prior to suspend.

Turning the Bluetooth Radio Mode Off

1. Tap *Start* - *Settings* - *Connections* tab - *Bluetooth* icon - *Mode* tab.

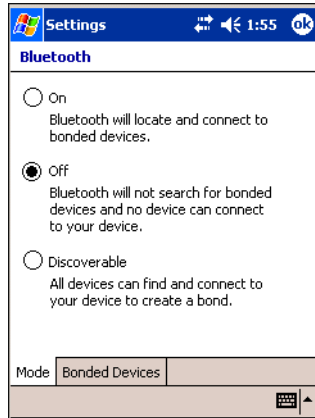
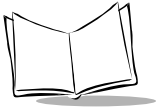



Figure 8-1. Bluetooth Window - Mode Tab

2. Select the *Off* radio button to turn the Bluetooth radio transmitter off.
3. Tap **ok** to return to the *Connections* tab.

or



4. Tap  on the navigation bar at the top of the screen to display the *Connectivity* dialog box.

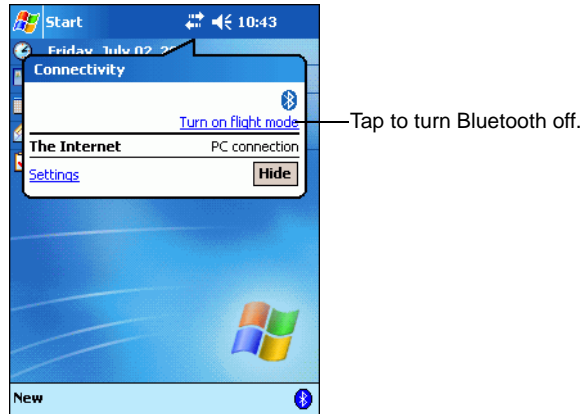



Figure 8-2. Connectivity Dialog Box

5. Tap *Turn on flight mode* to turn off the Bluetooth radio mode.

Turning the Bluetooth Radio Mode On

1. Tap *Start - Settings - Settings tab - Wireless Adapter Control icon*.
2. Tap the *Radio Off* button to turn the wireless radio off.
3. Tap **ok** to close the window.
4. Tap *Start - Settings - Connections tab - Bluetooth icon - Mode tab*.
5. Select the *On* radio button or the *Discoverable* radio button to turn the Bluetooth radio transmitter on.
 - In *On* mode, the terminal is connectable allowing it to locate and connect to bonded Bluetooth devices within range (30 feet/10 meters). In this mode, the terminal can detect other devices without allowing other devices to detect the terminal.
 - In *Discoverable* mode, the terminal can be seen and connected to by other devices allowing all Bluetooth devices within range (30 feet/10 meters) to detect the terminal and attempt to beam information to it and/or establish a bond. In this mode, other Bluetooth devices can detect the terminal whether or not a bond was created, however, in order to receive a beam from another device it must be accepted on the terminal.

or

6. Tap  on the navigation bar at the top of the screen to display the *Connectivity* dialog box.

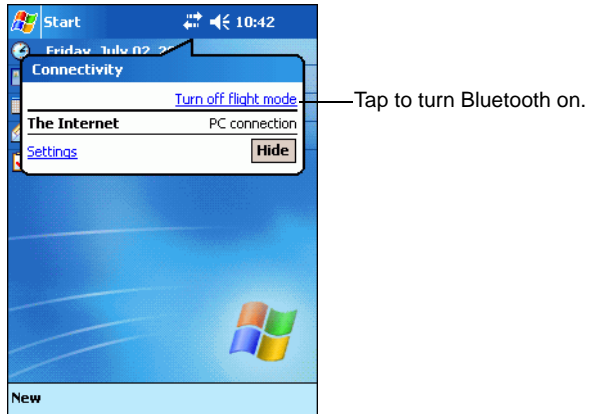


Figure 8-3. Connectivity Dialog Box

7. Tap *Turn off flight mode* to turn on the Bluetooth radio mode.

Discovering Bluetooth Device(s)

Follow the steps below to discover and create bonds with other Bluetooth devices. The terminal can receive information from discovered devices, without creating a bond. However, once bonded, an exchange of information between the terminal and a bonded device occurs automatically when the Bluetooth radio is turned on.

Bonding with Discovered Device(s)

A bond is a relationship created between the terminal and another Bluetooth device in order to exchange information in a secure manner. Creating a bond involves entering the same PIN on the two devices to bond. Once a bond is created, and the Bluetooth radios are turned on, the devices recognize the bond and are able to exchange information without re-entering a PIN.

To bond with a discovered Bluetooth device:

1. Ensure that the Bluetooth device being looked for is in discoverable mode.



2. Ensure that the two devices are within 30 feet (10 meters) of one another.
3. Tap *Start - Settings - Connections* tab.

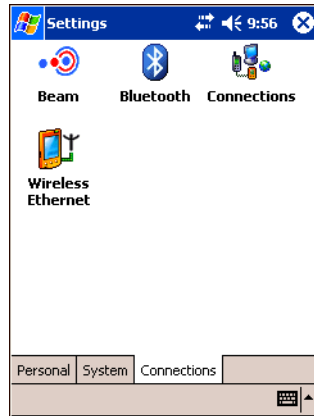


Figure 8-4. Settings Window - Connections Tab

4. Tap *Bluetooth* icon - *Bonded Devices* tab.

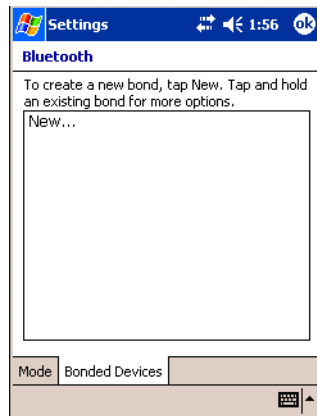


Figure 8-5. Bluetooth Window - Bonded Devices Tab

5. Tap **New...** . The terminal searches for other Bluetooth devices and displays them in the list.

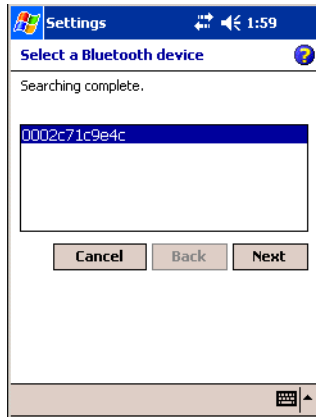


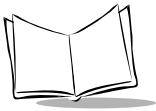
Figure 8-6. Select a Bluetooth Device Window

6. In the list, tap the device with which to create a bond and then tap **Next**.



Figure 8-7. Enter Device Bluetooth PIN Window

Note: *If the device to which the terminal is bonding does not appear in the list, ensure it is turned on, in discoverable mode, and within range (30 feet/10 meters) of the terminal.*



Note: The Device Pin can only be numeric characters.

7. In the *Device PIN:* text box, enter a PIN (between 1 and 16 characters) and tap **Next**. The terminal sends the PIN request to the device for bonding.
8. When prompted, the same PIN must be entered on the other device. When the PIN is entered correctly on the other device, the *Name the Bluetooth Device* window appears.

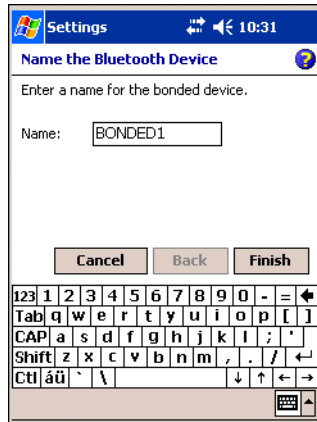


Figure 8-8. Name the Bluetooth Device Window

9. In the *Name:* text box, edit the name of the other device, if desired.
10. Tap **Finish**. The bonded device appears in the list.



Figure 8-9. Bluetooth Bonded Devices Window

Renaming a Bonded Device

If it is necessary to rename a bonded device, it can be done from the *Bluetooth Bonded Devices* window.

1. Tap *Start - Settings - Connections* tab - *Bluetooth* icon - *Bonded Devices* tab.
2. Tap and hold the device to rename. In the pop-up menu, select *Rename*.



Figure 8-10. Rename Device Selection Dialog Box

3. The *Rename bonded device* window appears.

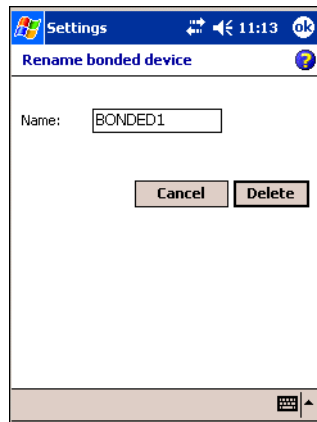
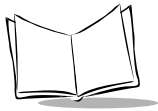


Figure 8-11. Rename Bonded Device Window



4. Enter a new name for the bonded device in the *Name:* text box. Tap **ok**.

Note: Tap **Delete** in this window to delete a bonded device.

Deleting a Bonded Device

If it is no longer necessary to connect with a device, delete it from the *Bluetooth Bonded Devices* window.

1. Tap *Start - Settings - Connections* tab - *Bluetooth* icon - *Bonded Devices* tab.
2. Tap and hold the device to delete. In the pop-up menu, select *Delete*.

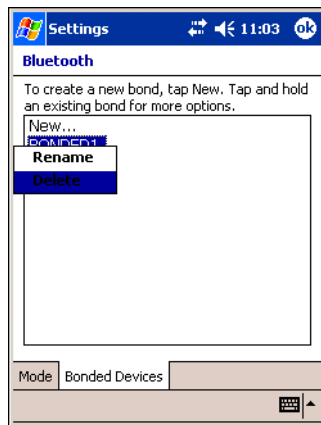


Figure 8-12. Delete Device

3. A confirmation dialog appears. Tap **Yes**.

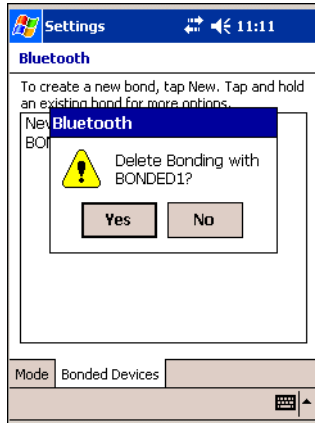
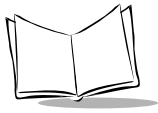


Figure 8-13. Delete Device Confirmation Dialog Box



Receiving Incoming Beams

By default, the terminal detects incoming Bluetooth beams and prompts the user to accept them. Clear the *Receive all incoming beams* check box to prevent the terminal from detecting or receiving beams.

To turn off incoming beams:

1. Tap *Start* - *Settings* - *Connections* tab - *Beam* icon.

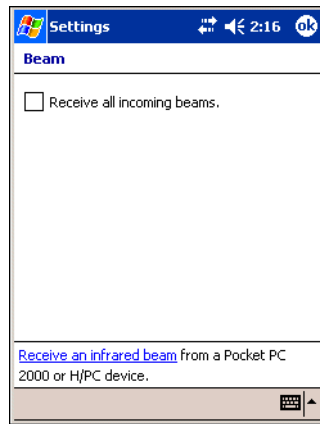


Figure 8-14. Beam Window

2. Tap the *Receive all incoming beams* check box to clear the box.
3. Tap **ok**.

Note: *Ensure the Receive all incoming beams check box is checked to receive all incoming beams.*

Accepting a Bond

1. Ensure that the Bluetooth device is turned on and in discoverable mode.
2. When prompted to bond with the other device, tap **OK**.



Figure 8-15. Accept a Bond Request Window

Note: *The Device Pin can only be numeric characters.*

3. In the *Device PIN*: text box, enter the same PIN that was entered on the device requesting the bond. The PIN must be between 1 and 16 characters.



Figure 8-16. Enter Device Bluetooth PIN Window



4. Tap **Next**.
5. In the *Name*: text box, edit the name of the device requesting the bond, if desired.

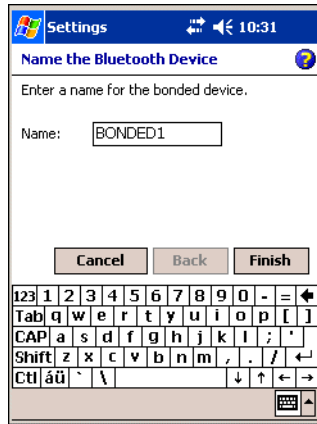


Figure 8-17. Name the Bluetooth Device Window

6. Tap **Finish**.
7. The bond is created and the terminal can now exchange information with the other device.

Beaming Information

The terminal can beam information such as an appointment in Calendar, a task in Tasks, a contact card in Contacts or a file in File Explorer. To beam information to another device:

Sending an Appointment or Task

1. Ensure the other Bluetooth device is set up to receive an appointment or task.
2. Tap *Start - Today* to display the *Today* screen.

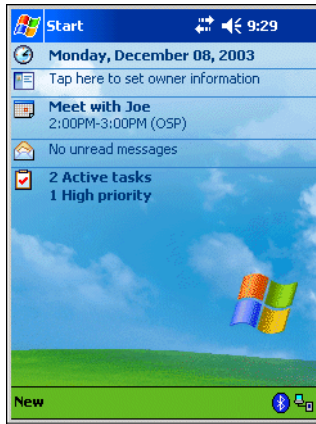
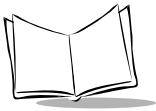
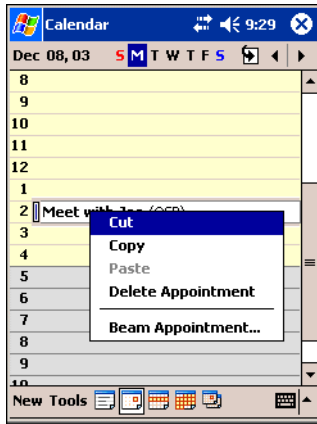


Figure 8-18. Today Screen

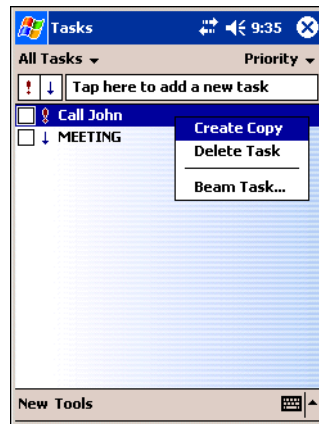
3. On the *Today* screen, tap either an appointment or a task to beam.



4. Tap and hold the appointment or task to send. In the pop-up menu, select *Beam Appointment.../Task...* .



Calendar Appointment Window



Task Window

Figure 8-19. Appointment/Task Windows

5. The terminal begins to search for Bluetooth devices within range.



Figure 8-20. Calendar/Tasks Windows - Beam

Note: If the terminal is bonded to a device but it does not appear in the list, ensure it is turned on, in discoverable mode, and within range (30

feet/10 meters) of the terminal. In addition, ensure the mobile device's Bluetooth radio is turned on.

6. On the *Calendar* or *Tasks* window, tap *Tap to send* to the Bluetooth device receiving the appointment or task. (Tap *Pending* to cancel.)
7. The terminal processes and sends the file(s).

Sending a Contact

1. Ensure the other Bluetooth device is set up to receive a contact.
2. Tap *Start - Contacts*. The *Contacts* window appears.
3. Tap and hold the contact(s) to send. In the pop-up menu, select *Beam Contact...*

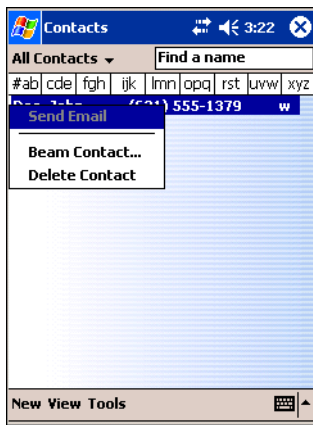


Figure 8-21. Contact Window



4. The terminal begins to search for Bluetooth devices within range.



Figure 8-22. Contacts Window - Beam

Note: *If the terminal is bonded to a device but it does not appear in the list, ensure it is turned on, in discoverable mode, and within range (30 feet/10 meters) of the terminal. In addition, ensure the mobile device's Bluetooth radio is turned on.*

5. On the *Contacts* window, tap *Tap to send* to the Bluetooth device receiving the contact. (Tap *Pending* to cancel.)
6. The terminal processes and sends the file(s).

Sending a File

1. Ensure the other Bluetooth device is set up to receive a file.
2. Tap *Start - Programs - File Explorer* icon to search for a file to send.
3. Tap and hold the file(s) to send. In the pop-up menu, select *Beam File....*

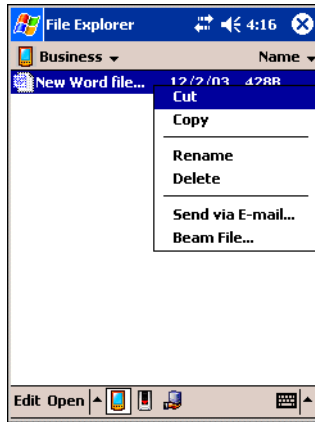


Figure 8-23. File Explorer Window

4. The terminal begins to search for Bluetooth devices within range.

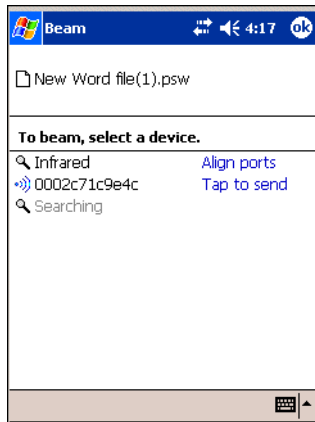
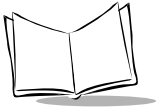


Figure 8-24. File Window - Beam

Note: If the terminal is bonded to a device but it does not appear in the list, ensure it is turned on, in discoverable mode, and within range (30



feet/10 meters) of the terminal. In addition, ensure the mobile device's Bluetooth radio is turned on.

5. On the *File* window, tap *Tap to send* to the Bluetooth device receiving the file(s). (Tap *Pending* to cancel.)
6. The terminal processes and sends the file(s).

Bluetooth Communications

To use a phone that has Bluetooth capabilities as a modem for the terminal, create a Bluetooth modem connection on the terminal and send information to the phone using Bluetooth. The phone relays the information over the phone line and sends back to the terminal any information that was requested over the connection. Once a modem connection is created to the Bluetooth phone, it can be reused.

Prior to creating a connection, ensure the following:

- Bluetooth phone is turned on.
- Bluetooth phone is discoverable. (Some phones may also need to be pairable in order to accept a bonding request. For more information, see the phone documentation.)
- terminal's and phone's Bluetooth radios are turned on.
- terminal and phone are within range of each other (30 feet/10 meters).

Dial-up to the Network

Complete the following steps to create a new Bluetooth connection. Before setting up dial-up networking, obtain dial-up information and other necessary settings for the office network or ISP.

1. Tap *Start - Settings - Connections* tab - *Connections* icon. The Connections window appears.

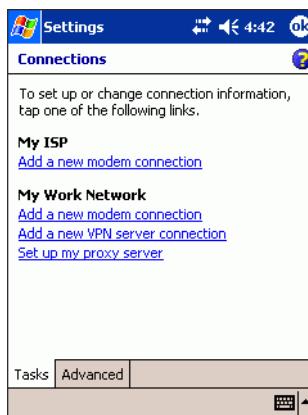


Figure 8-25. Connections Window



2. Tap the *Advanced* tab.

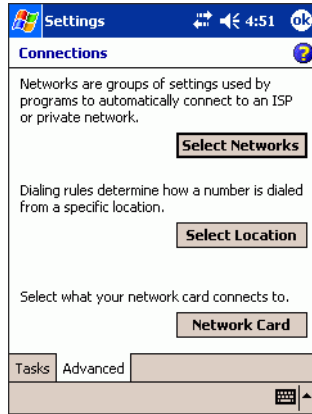


Figure 8-26. Connections - Advanced Tab

3. Tap **Select Networks**. The *Network Management* window appears.

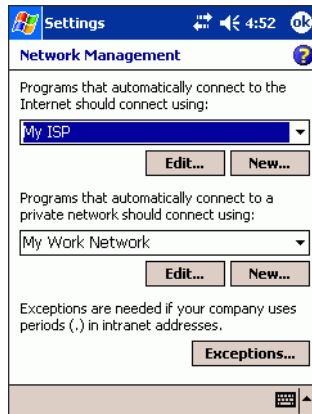


Figure 8-27. Network Management Window

4. In the top drop-down list, select *My ISP*.
5. In the bottom drop-down list, select *My Work Network*.
6. Tap **ok**.
7. Tap the *Tasks* tab.

8. Tap *Add a new modem connection* under *My ISP*. The *My Connection* window appears.



Figure 8-28. My Connection Window

9. In the *Enter a name for the connection:* text box, enter a name, such as *ISP via Bluetooth*.
10. In the *Select a modem:* drop-down list, select *BluetoothDUN*.
11. Tap **Next**.



Figure 8-29. New Dial-Up Window



12. Ensure the Bluetooth phone is discoverable. Tap **New...** . The terminal searches for other Bluetooth devices and displays them in the list.

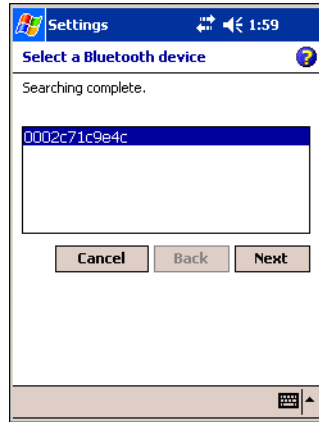


Figure 8-30. Select Bluetooth Device Window

13. In the list, select the device and then tap **Next**.



Figure 8-31. Enter Bluetooth Device PIN Window

Note: *The Device Pin can only be numeric characters.*

14. In the *Device PIN*: text box, enter a PIN (between 1 and 16 characters) and tap **Next**. The terminal sends the PIN request to the phone. When prompted, enter the same PIN on the phone.
15. In the *Name*: text box, edit the name of the device requesting the bond, if desired.

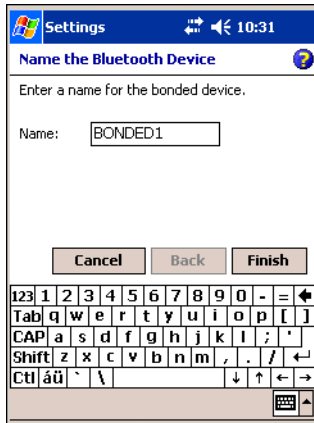


Figure 8-32. Name the Bluetooth Device Window

16. Tap **Finish**.
17. Enter the dial-up number exactly how it should be dialed. Include the country and area code as required.

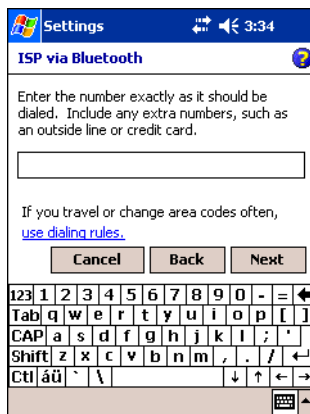
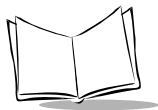


Figure 8-33. Enter Dial-Up Number Window



18. Tap **Next**.

Figure 8-34. My Connection Window

19. In the *User name*: text box, enter the user name for this connection.
20. In the *Password*: text box, enter the password for this connection.
21. In the *Domain*: text box, enter the domain for this connection, if required.
22. Tap **Advanced**. The *Advanced* window appears.

Figure 8-35. Advanced Window - General Tab

23. Tap the *General* tab.
24. In the *Baud Rate*: drop-down list, select 115200.

25. Un-check the *Wait for dial tone before dialing* check box.
26. If the network uses DHCP, tap **ok**.
27. If IP addresses are required, tap the *TCP/IP* and *Servers* tabs to enter the necessary settings. Tap **ok**.

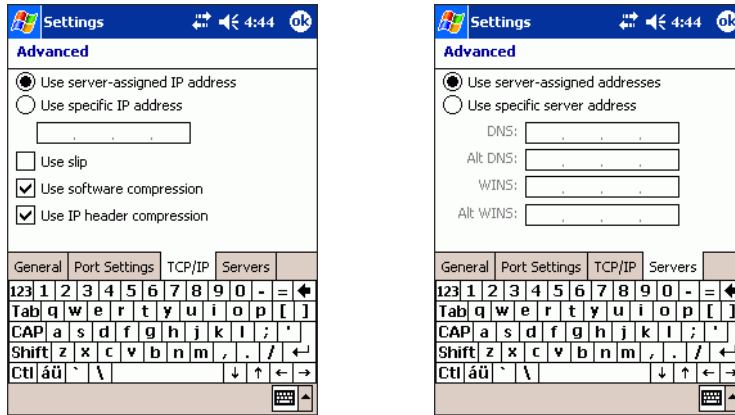


Figure 8-36. Advanced Window - TCP/IP and Servers Tabs

28. Tap **Finish**.
29. Tap the *Connection* icon in the navigation bar at the top of the screen. An “X” indicates that the terminal is not connected.
30. The *Connectivity* dialog box appears with the dial-up connection just created. Verify the phone number, then tap the phone number.

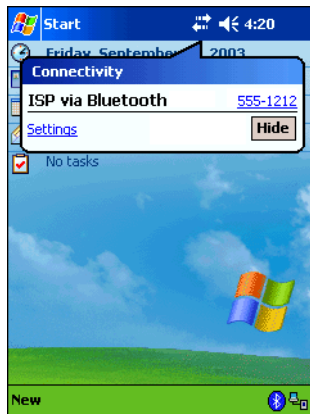
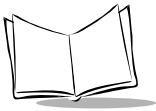


Figure 8-37. Connecting to a Bluetooth Phone



Note: Multiple connections may be listed. Tap on the phone number of the connection to dial.

31. Depending on the phone and connection settings, entering a passkey and/or a password may be required before the phone starts to dial.
32. If the dial-up password was not saved, the *Network Log On* screen appears.

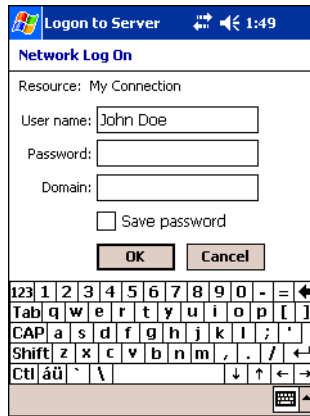


Figure 8-38. Network Log On Window

33. Enter the Password and tap **ok**.

34. The device begins dialing.



Figure 8-39. Dialing the Bluetooth Phone

Dial Automatically from an Application

After a dial-up connection is set up, the Connection Manager automatically tries to connect whenever Pocket Internet Explorer, Pocket Inbox, or any other program that uses a dial-up connection is used.

To dial automatically:

1. Start the program that uses a dial-up connection. Enter a request for receiving and/or transmitting information (e.g., in *Pocket Internet Explorer*, enter a new URL and tap “Go”). The terminal automatically tries to connect.

Note: *If the phone number or dialing location is wrong, tap Settings. Tap Manage existing connections and edit the properties of the connection.*

2. Depending on the phone and connection settings, entering a passkey and/or a password may be required before the phone starts to dial.
3. If the dial-up password was not saved, the *Network Log On* screen may appear. Enter the Password and tap **ok**.
4. When the terminal starts calling, the call status can be seen on both the terminal and phone display. After the terminal connects, it receives/transmits the information as requested (e.g., *Pocket Internet Explorer* displays the requested web site).



Bluetooth LAN Access

This section explains how to use dial-up networking to access a Bluetooth-enabled LAN access point (AP) for a network connection. To use this method for LAN access, ensure the Bluetooth AP supports communication as a Bluetooth dial-up modem. With this method of communication the Internet Explorer can be used to connect to the server.

The steps required to create a Bluetooth-enabled LAN connection via APs are similar to creating a new dial-up. A valid telephone number and other advanced settings for the office network or ISP are not required.

Connecting to a Bluetooth Access Point

1. Tap *Start* - *Settings* - *Connections* tab - *Connections* icon. The Connections window appears.



Figure 8-40. Connections Window

2. On the *Tasks* tab, tap *Add a new modem connection* under *My ISP*. The *My Connection* window appears.

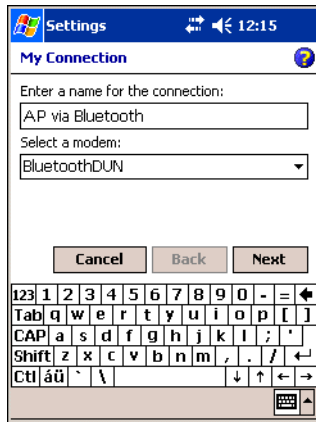
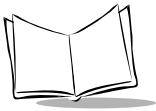


Figure 8-41. My Connection Window

3. In the *Enter a name for the connection:* text box, enter a name, such as *AP via Bluetooth*.
4. In the *Select a modem:* drop-down list, select *BluetoothDUN*.
5. Tap **Next**.



Figure 8-42. New Dial-Up Window



6. Ensure the Bluetooth AP is discoverable. Tap **New...** . The terminal searches for other Bluetooth devices and displays them in the list.

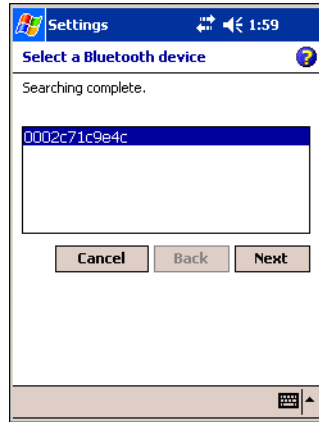


Figure 8-43. Select Bluetooth Device Window

7. In the list, select the appropriate Bluetooth AP and then tap **Next**.



Figure 8-44. Enter Bluetooth Device PIN Window

Note: *The Device Pin can only be numeric characters.*

8. In the *Device PIN:* text box, enter the PIN (between 1 and 16 characters) the AP is set to and tap **Next**. The terminal sends the PIN request to the AP.

9. In the *Name:* text box, edit the name of the AP, if desired.
10. Tap **Finish**.
11. In the **My Connections** list, tap the phone, and then **Next**.

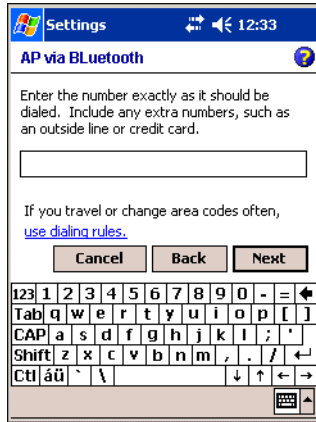


Figure 8-45. Enter Dial-Up Number

12. Enter any string of numbers.

Note: An actual telephone number is not required however, the Bluetooth AP must support connections as Bluetooth modem.

13. Tap **Next**.

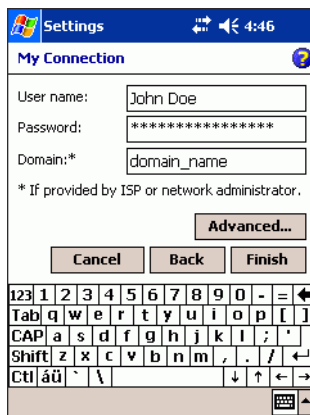
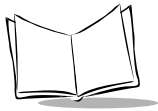


Figure 8-46. My Connection Window



14. In the *User name*: text box, enter the user name for this connection.
15. In the *Password*: text box, enter the password for this connection.
16. In the *Domain*: text box, enter the domain for this connection, if required.
17. Tap **Finish**.
18. Tap the *Connection* icon in the navigation bar at the top of the screen. An “X” indicates that the terminal is not connected.
19. The *Connectivity* dialog box appears with the AP connection just created. Tap the phone number to start connecting.

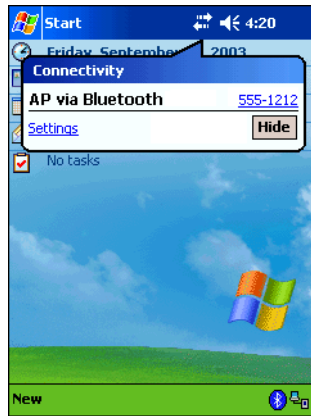


Figure 8-47. Connecting to a Bluetooth AP

Note: Multiple connections may be listed. Tap on the phone number of the AP connection.

20. Depending on the AP and connection settings, entering a passkey and/or a password may be required.

21. If a password is required and it was not saved, the *Network Log On* screen appears.

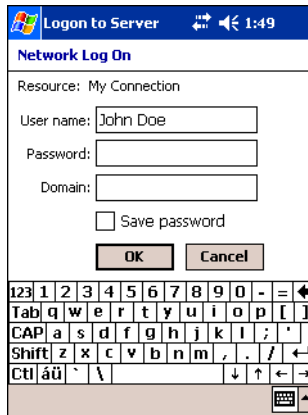


Figure 8-48. Network Log On Window

22. Enter the Password and tap **ok**.
 23. The terminal attempts to connect to the AP.

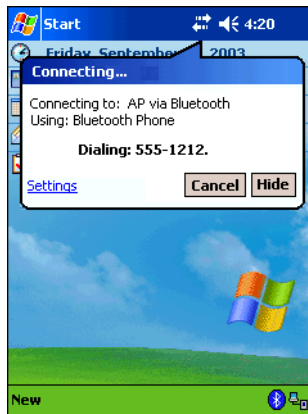
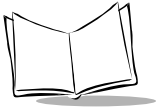


Figure 8-49. Connecting Dialog Box

Automatic Connection

Some Bluetooth enabled phones allow automatic connections to be set up with devices they have successfully bonded with, without requiring a password to be entered manual for



each connection attempt. To set up automatic connections between the phone and the terminal, follow the appropriate instructions below for the specific phone.

1. Motorola Timeport 270C:
 - a. On the phone, press **MENU**.
 - b. Scroll to *Settings*, then press **SELECT**.
 - c. Scroll to *Connection*, then press **ON**.
 - d. On *Bluetooth Link*, press **SELECT**.
 - e. Scroll to *Devices*, then press **SELECT**.
 - f. Choose the terminal, then press **EDIT**.
 - g. Scroll to *Access:Ask*, then press **CHANGE**.
 - h. Scroll to *Automatic*, then press **SELECT**. Press **DONE**.
2. Nokia 3650/7650:
 - a. On the phone, press **MENU**.
 - b. Scroll to *Connectivity*, then press **Options**.
 - c. The *Open* option should be highlighted. Press **Select**.
 - d. The *Bluetooth* option should be highlighted. Press **Options**.
 - e. The *Open* option should be highlighted. Press **Select**.
 - f. Scroll to the right tab to access the *Paired* devices list. Highlight the terminal, then press **Options**.
 - g. Scroll to *Set as authorised*, then press **Select**.
 - h. In the confirmation screen, press **Yes**.
3. Nokia 6310/8910/8910i:
 - a. On the phone, press **MENU**.
 - b. Scroll to *10 Bluetooth*, then press **SELECT**.
 - c. Scroll to *4 View Paired Devices*, then press **SELECT**.
 - d. Highlight the *Pocket PC*, then press **OPTIONS**.
 - e. Scroll to *3 Request Connection Authorization*, then press **NO**.

Creating a Bluetooth Virtual COM Port

There are two ways to write an RFCOMM application. The first is by creating a virtual legacy COM port. The second is through Winsock. Microsoft recommends using Winsock.

The sample code that follows demonstrates how to create a Bluetooth virtual COM port.

```
// Begin
SetCursor(LoadCursor(NULL, IDC_WAIT));// Set a wait cursor
memset(&pp, 0, sizeof(pp));// Clear the PORTEMUPortParams
// structure.
pp.uiportflags = RFCOMM_PORT_FLAGS_KEEP_DCD;
// DCD ON while in piconet
pp.channel = 1;// Set to either an explicit server channel, or, for a server
// application that wants the server channel to be
// autobound, to RFCOMM_CHANNEL_MULTIPLE.
pp.flocal = FALSE;// Set to FALSE for a client port that is used
// to creating outgoing connections.

// pp.imtu should be set to something other than the default, if data payload size is larger than
// 128 /bytes. For further information on this structure, refer to the Microsoft Help.

GetBA(_T("53594D421722"), &pp.device);// ** Set your slave's BDADDR here
nIndex = 8;// This must be the same as the COM port number.
// For devices that expose the stream interface, the drivers are DLL files. Each driver is initialized by
// a call to the RegisterDevice function. The Device Manager calls this function on behalf of the
// driver. However, applications can load their own special-purpose stream interface, in which case
// they also call this function to register the driver.

h = RegisterDevice(_T("COM"), nIndex, _T("btd.dll"), (DWORD)&pp);
if (h != NULL)
{
    // Success!
    hComPort = InitSerial(TEXT("COM8:"), CBR_115200);// Init port.
    if (hComPort == NULL)
    {
        // Failure!
#ifdef DEBUG
        LogData(_T("Failed to open Comport, trying again"));
#endif
    }
}
```



```
hComPort = InitSerial(TEXT("COM8:"), CBR_115200);// Init port.
}

// Perform serial operations here...
}
#ifdef DEBUG
else
{
    // Failure!
    LogData(_T("Failed to register Comport device"));
}
#endif

SetCursor(LoadCursor(NULL, NULL));// Clear the wait cursor

// End
*****

FUNCTION: GetBA
PROTOTYPE: int GetBA (WCHAR *pp, BT_ADDR *pba)
PURPOSE: Form the BDADDR in a way the PORTEMUPortParams structure understands.
*****

/int GetBA (WCHAR *pp, BT_ADDR *pba)
{
    // Bump pointer through any leading spaces
    while (*pp == ' ')
        ++pp;

    for (int i = 0 ; i < 4 ; ++i, ++pp)
    {
        if (!iswxdigit (*pp))
            return(FALSE);

        int c = *pp;
        if (c >= 'a')
            c = c - 'a' + 0xa;
        else if (c >= 'A')
            c = c - 'A' + 0xa;
        else c = c - '0';

        if ((c < 0) || (c > 16))
    }
```

```

        return(FALSE);

        *pba = *pba * 16 + c;
    }

    for (i = 0; i < 8 ; ++i, ++pp)
    {
        if (!iswxdigit (*pp))
            return(FALSE);

        int c = *pp;
        if (c >= 'a')
            c = c - 'a' + 0xa;
        else if (c >= 'A')
            c = c - 'A' + 0xa;
        else c = c - '0';

        if ((c < 0) || (c > 16))
            return(FALSE);

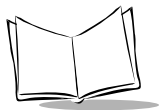
        *pba = *pba * 16 + c;
    }

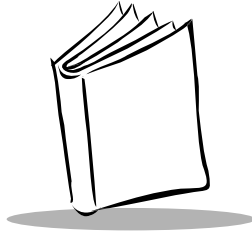
    if ((*pp != '\n') && (*pp != '\0'))
        return(FALSE);
    else
        return(TRUE);
}

```

Bluetooth Printing

The terminal supports Bluetooth printers that support a serial port profile. Printing to a Bluetooth printer requires a print-enabled application to be installed on the terminal. Refer to the DCP for the PPT 8800 for more information.





Chapter 9

AirBEAM Smart

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Introduction

The AirBEAM Smart product allows specially designed software packages to be transferred between a host server and Symbol wireless handheld devices. Before transfer, AirBEAM Smart checks and compares package version, so that only updated packages are loaded.

AirBEAM Smart resides on radio-equipped client devices, and allows them to request, download, and install software, as well as to upload files and status data. Both download and upload of files can be accomplished in a single communications session. The ability to transfer software over a radio network can greatly reduce the logistical efforts of client software management.

In an AirBEAM Smart system, a network-accessible host server acts as the storage point for the software transfer. The AirBEAM Smart Client uses the industry standard FTP or TFTP file transfer protocols to check the host system for updates, and if necessary, to transfer updated software.

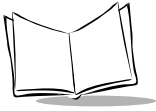
AirBEAM Package Builder

In a typical distributed AirBEAM system, software to be transferred is organized into packages. In general, an AirBEAM package is simply a set of files that are assigned attributes both as an entire package and as individual component files. The package is assigned a version number, and the transfer occurs when an updated version is available.

An AirBEAM package can optionally contain developer-specified logic to be used to install the package. Installation logic is typically used to update client device flash images or radio firmware. Examples of common AirBEAM packages would include packages for custom client application software, radio firmware and AirBEAM Smart Client software.

Once these packages are built, they are installed on the host server for retrieval by the handheld device. The AirBEAM Package Builder is a utility used to define, generate and install AirBEAM packages to a server. The packages are then loaded from the server onto a client device equipped with an AirBEAM Smart Client executable.

For detailed instructions on how to define, generate and install AirBEAM packages to the server, refer to the *AirBEAM Package Builder Product Reference Guide*, p/n 72-55769-xx.



AirBEAM Smart Client

The AirBEAM Smart Client is installed on your handheld terminal. It is configured with the server access information, the names of the packages to be downloaded and other controlling parameters. When the AirBEAM Smart Client is launched, the device connects to the specified FTP server and checks the packages it is configured to look for. If the package version was updated, the client requests the transfer.

AirBEAM License

The AirBEAM Smart Client is a licensed software product. The AirBEAM Smart Client's version synchronization functionality is enabled through a license key file that is stored on the client device. The license key file can be built into AirBEAM Smart Client's image, or downloaded in a special AirBEAM package.

The AirBEAM license key file contains a unique key and a customer specific banner that is displayed when the AirBEAM Smart Client version synchronization logic is invoked.

Configuring the AirBEAM Smart Client

1. Tap *Start - Programs - AirBEAM Smart Client*. The *AirBEAM Smart CE* window appears.
2. Tap *File - Configure*. The *AirBEAM* configuration window appears.

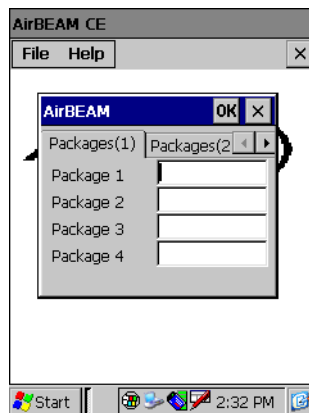
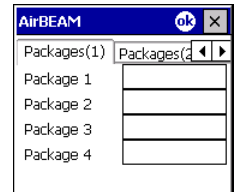


Figure 9-1. AirBEAM Configuration Window

The configuration window is used to view and edit AirBEAM Smart Client configurations. This dialog box has six tabs that you can modify - Packages(1), Packages(2), Server, Misc(1), Misc(2) and Misc(3).

Packages(1) Tab

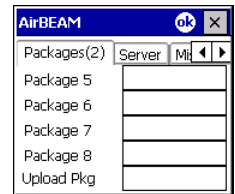
This tab is used to specify the package name of the first four of eight packages that are to be loaded during the AirBEAM synchronization process. The specified package name must correspond to a package that is available on the specified package server.



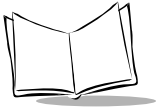
Field	Description
Package 1	Package name of the first of eight packages. This is an optional field.
Package 2	Package name of the second of eight packages. This is an optional field.
Package 3	Package name of the third of eight packages. This is an optional field.
Package 4	Package name of the fourth of eight packages. This is an optional field.

Packages(2) Tab

This tab is used to specify the package name of the last four of eight packages that are to be loaded during the AirBEAM synchronization process. The specified package name must correspond to a package that is available on the specified package server.



Field	Description
Package 5	Package name of the fifth of eight packages. This is an optional field.
Package 6	Package name of the sixth of eight packages. This is an optional field.
Package 7	Package name of the seventh of eight packages. This is an optional field.
Package 8	Package name of the eighth of eight packages. This is an optional field.
Upload Pkg	Package name of a package that is to be processed for "upload files" during the AirBEAM synchronization process. The specified package name must correspond to a package that is available on the specified package server. This is an optional field.



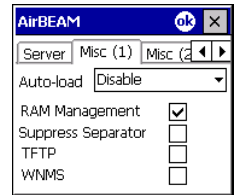
Server Tab

This tab is used to specify the configurations of the server to which the client connects during the package synchronization process.

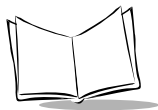
Field	Description
IP Address	The IP Address of the server. It may be a host name or a dot notation format.
Directory	The directory on the server that contains the AirBEAM package definition files. All AirBEAM package definition files are retrieved from this directory during the package synchronization process.
User	The FTP user name that is used during the login phase of the package synchronization process.
Password	The FTP password that corresponds to the FTP user specified in the User field. The specified password is used during the login phase of the package synchronization process.

Misc(1) Tab

This tab is used to configure various miscellaneous features.



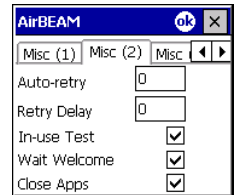
Field	Description
Auto-load	<p>This drop-down list is used to specify how the AirBEAM Smart Client is to be invoked automatically when the client device is rebooted. The selections are:</p> <p>Disable: the AirBEAM Smart Client is not invoked automatically during the boot sequence.</p> <p>Interactive: the AirBEAM Smart Client is invoked automatically during the boot sequence. The package synchronization process is started automatically. The <i>Synchronization Dialog</i> box appears, and the user is required to press the OK button when the process is complete.</p> <p>Non-interactive: the AirBEAM Smart Client is invoked automatically during the boot sequence. The package synchronization process is started automatically. The <i>Synchronization Dialog</i> box is displayed, but the user is not required to tap OK when the process is complete. The <i>Synchronization Dialog</i> box terminates automatically.</p> <p>Background: the AirBEAM Smart Client is invoked automatically during the boot sequence. The package synchronization process is started automatically. Nothing is displayed while the synchronization process is occurring.</p>
RAM Management	<p>This check box specifies whether the automatic RAM management is enabled during the package synchronization process.</p> <p>If enabled, RAM management logic is invoked when there is not enough free disk space to download a package. The RAM management logic attempts to remove any discardable AirBEAM packages resident on the client.</p>



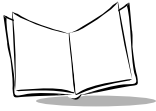
Field	Description
Suppress Separator	<p>This check box specifies whether the automatic insertion of a file path separator character should be suppressed when the client generated server package definition file names.</p> <p>When enabled, the parameter also disables the appending of .apd to the package. This feature is useful for AS/400 systems, in which the file path separator character is a period. When this feature is enabled, the server directory (Directory) and package name (Package 1, Package 2, Package 3, and Package 4) are appended "as is" when building the name for the server package definition file.</p> <p>When this feature is disabled, a standard file path separator is used to separate the server directory (Directory) and package name (Package 1, Package 2, Package 3, and Package 4) when building the name for the server package definition file. In addition, an .apd extension is appended automatically.</p>
TFTP	<p>This check box specifies whether the TFTP protocol is to be used to download files. By default, the AirBEAM Smart Client uses the FTP protocol.</p>
WNMS	<p>This check box specifies whether the AirBEAM Smart Client uploads a WNMS information file at the end of each version synchronization.</p>

Misc(2) Tab

This tab is used to configure various miscellaneous features.

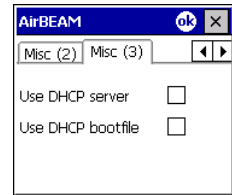


Field	Description
Auto-retry	<p>This field is used to specify whether the AirBEAM Smart Client automatically retries if there is a failure during the synchronization process.</p> <p>If this feature is enabled, the AirBEAM Smart Client displays a popup dialog indicating the attempt of a retry. The popup dialog is displayed for the number of seconds specified in the <i>Retry Delay</i> field.</p> <p>The valid values for this field are:</p> <ul style="list-style-type: none"> -1: the AirBEAM Smart Client automatically retries indefinitely. 0: the AirBEAM Smart Client does not automatically retry. -0: the AirBEAM Smart Client automatically retries up to the number of times specified.
Retry Delay	<p>This field specifies the amount of time, in seconds, that the AirBEAM Smart Client delays before automatically retrying after a synchronization failure.</p>
In-use Test	<p>This check box specifies whether the AirBEAM Smart Client tests to determine if a file is in-use before downloading. If the <i>In-use Test</i> feature is enabled, the AirBEAM Smart Client downloads a temporary copy of any files that are in-use. If any temporary in-use files are downloaded the AirBEAM Smart Client automatically resets the client to complete the copy of the in-use files. If the <i>In-use Test</i> feature is disabled, the synchronization process fails (-813) if any download files are in-use.</p>
Wait Welcome	<p>This check box specifies whether the AirBEAM Smart Client waits for the WELCOME windows to be completed before automatically launching the synchronization process after a reset.</p>
Close Apps	<p>This check box specifies whether the AirBEAM Smart Client automatically attempts to close non-system applications prior to resetting the mobile unit. If enabled the AirBEAM Smart Client sends a WM_CLOSE message to all non-system applications before resetting the mobile unit. This feature offers applications the opportunity to prepare (i.e. close open files) for the pending reset.</p>



Misc(3) Tab

This tab is used to configure various miscellaneous features.



Field	Description
Use DHCP server	This check box control specifies whether the AirBEAM Smart Client uses the DHCP response option 66 to specify the <i>IP address</i> of the FTP/TFTP server. If enabled, special RF network registry settings are required to force the DHCP server to return the "TFTP server name" field (option 66). The special RF network registry settings are included, but commented out, in the radio network registry initialization files (essid_xxxx_yy.reg).
Use DHCP bootfile	This check box control specifies whether the AirBEAM Smart Client uses the DHCP response option 67 to specify the <i>Package</i> and <i>Package 1</i> parameters. If enabled, special RF network registry settings are required to force the DHCP server to return the "Bootfile name" field (option 67). The special RF network registry settings are included, but commented out, in the radio network registry initialization files (essid_xxxx_yy.reg).

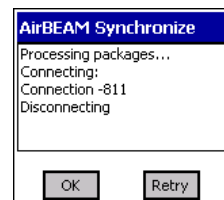
Synchronizing with the Server

When the synchronization process is initiated, the AirBEAM Smart Client attempts to open an FTP session using the AirBEAM Smart Client configuration. Once connected, the client processes the specified packages. Packages are loaded only if the server version of a given package is different from the version loaded on the client. Once the upload process is complete, the AirBEAM Smart Client closes the FTP session with the server.

The AirBEAM Smart Client can launch an FTP session with the server either manually, when initiated by the user, or automatically.

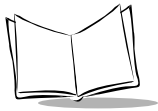
Manual Synchronization

1. Configure the AirBEAM Smart Client. See [Configuring the AirBEAM Smart Client](#) on page 9-4.
2. From the main *AirBEAM CE* window, tap *File - Synchronize*.
3. Once connected, the AirBEAM Synchronize window appears.
 - The Status List displays status messages that indicate the progress of the synchronization process.
 - Tap **OK** to return to the Main Menu. This button remains inactive until the synchronization process is complete.
 - Tap **Retry** to restart the synchronization process. This button is activated only if there is an error during the synchronization process.



Automatic Synchronization

The AirBEAM Smart Client can be configured to launch automatically using the Misc(1) Preference tab (see [Misc\(1\) Tab](#) on page 9-7). When setting automatic synchronization, use the Auto-load drop-down list to specify how the AirBEAM Smart Client should be invoked automatically when the client device is rebooted. Refer to [Misc\(1\) Tab](#) on page 9-7 for instructions on enabling Auto Sync.



AirBEAM Staging

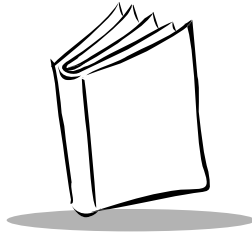
The AirBEAM Smart staging support is intended to speed up and simplify the process of staging custom or updated operating software onto mobile devices directly from manufacturing. The staging support is part of the AirBEAM Smart CE Client that is integrated into the terminal.

The AirBEAM Smart support works by defaulting the AirBEAM Client configuration to a known set of values and launching the AirBEAM Smart package download logic. A staging environment, including an RF network, FTP server and AirBEAM packages must be setup. Ideally a staging network and server should be setup to match the default AirBEAM Staging client configuration.

The AirBEAM Smart staging utility is invoked by tapping *Start - Programs - AirBEAM Staging*.

The AirBEAM Staging support provides several benefits:

- Many devices can be simultaneously loaded over the RF network.
- The AirBEAM staging utility provides a simple single dialog user interface that is used to quickly start the software installation process.

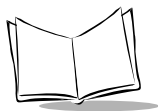


Chapter 10

Applications

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Introduction

Your terminal includes Calendar, Contacts, Tasks, Inbox, and Notes applications. You can use these programs individually or together. For example, e-mail addresses stored in Contacts can be used to address e-mail messages in Inbox.

Using ActiveSync, you can synchronize information in these applications between your host computer and your terminal. Each time you synchronize, ActiveSync compares the changes you made on your terminal and host computer and updates both with the latest information. For information on using ActiveSync, see [Chapter 4, Communication](#), and ActiveSync Help on the host computer.

You can switch to any of these programs by tapping them on the *Start* menu.

Calendar

Use Calendar to schedule appointments such as meetings. You can view your appointments in different ways (Agenda, Day, Week, Month, and Year) and easily change views using the *View* menu.

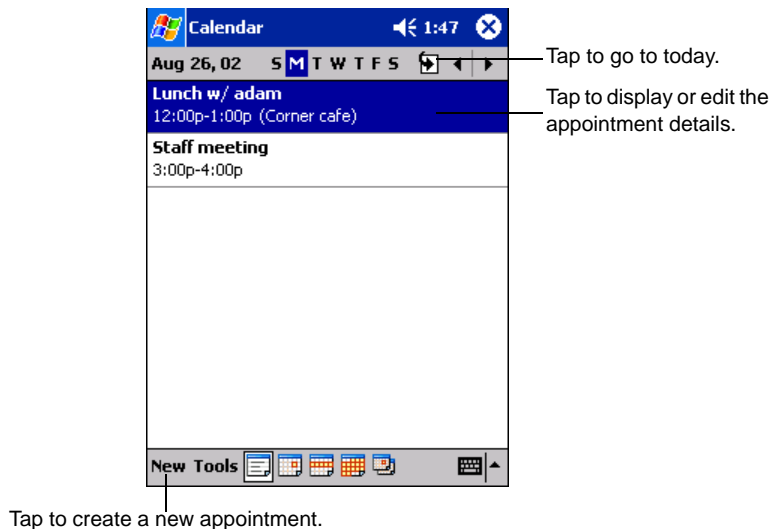
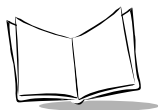


Figure 10-1. Calendar Application



Note: You can customize the Calendar display, such as changing the first day of the week, by tapping Tools - Options.

Creating Appointments

To create an appointment:

1. Tap *Start - Calendar* to open the application.
2. If you are in Day or Week view, tap the desired date and time for the appointment.
3. Tap *New*.

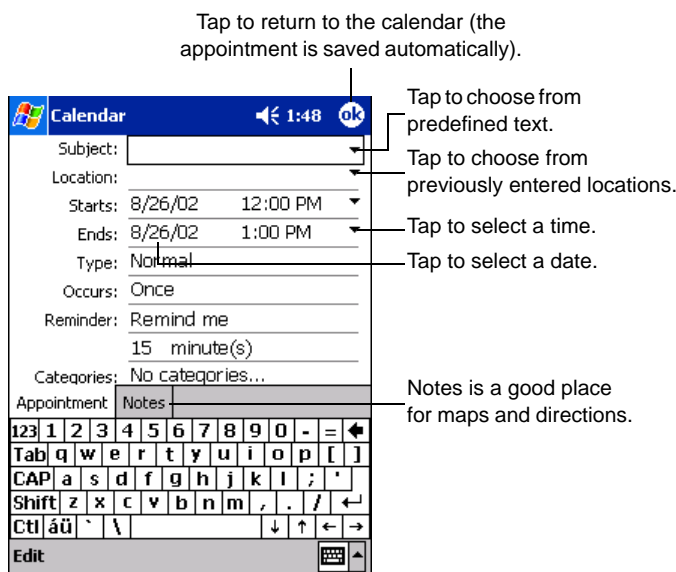


Figure 10-2. Entering an Appointment

4. Using the input panel, enter the subject and a location. Tap first to select the field.
5. If needed, tap the date and time to change them.
6. Enter other desired information. Hide the input panel to see all available fields.
7. To add notes, tap the *Notes* tab. You can enter text, draw, or create a recording. For more information on creating notes, see [Notes](#) on page 10-12.
8. When finished, tap **OK** to return to the *Calendar*.

Note: If you select *Remind me* in an appointment, your terminal notifies you according to the options set in *Start - Settings - Personal tab - Sounds & Notifications*.

Using the Summary Screen

When you tap an appointment in Calendar, a summary screen displays. Tap *Edit* to change the appointment.

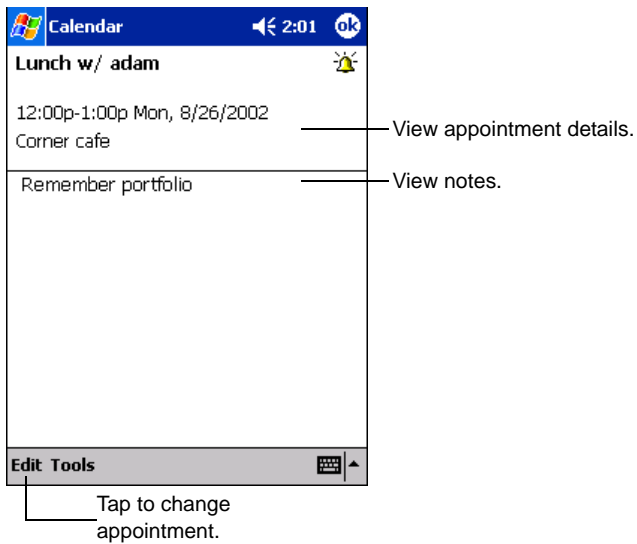


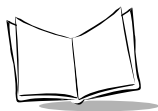
Figure 10-3. Appointment Summary Screen

Creating Meeting Requests

You can use Calendar to set up meetings with users of Outlook or Pocket Outlook. The meeting notice is created automatically and sent either when you synchronize Inbox or when you connect to your e-mail server. Indicate how you want meeting requests sent by tapping *Tools - Options*. If you send and receive e-mail messages through ActiveSync, select *ActiveSync*.

To schedule a meeting:

1. Create an appointment.
2. In the appointment details, hide the input panel, then tap *Attendees*.



3. From the list of e-mail addresses you've entered in Contacts, select the meeting attendees.

The meeting notice is created and placed in the Outbox folder. For more information on sending and receiving meeting requests, see Calendar Help and Inbox Help on your terminal.

Contacts

Contacts maintains a list of associates and friends so you can easily locate information at home or on the road. Using the infrared (IR) port, you can share Contacts information with other users.

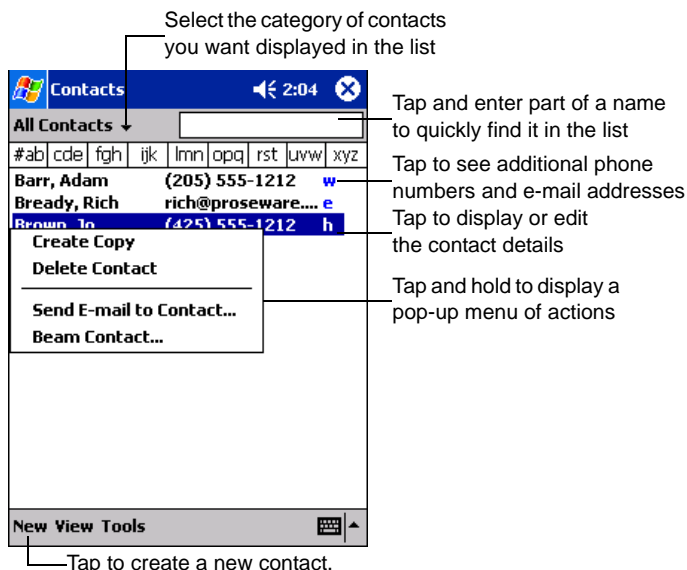


Figure 10-4. Contact Application

Note: To change the way information is listed, tap Tools - Options.

To create a contact:

1. Tap *Start - Contacts* to open the application.

2. Tap **New**.

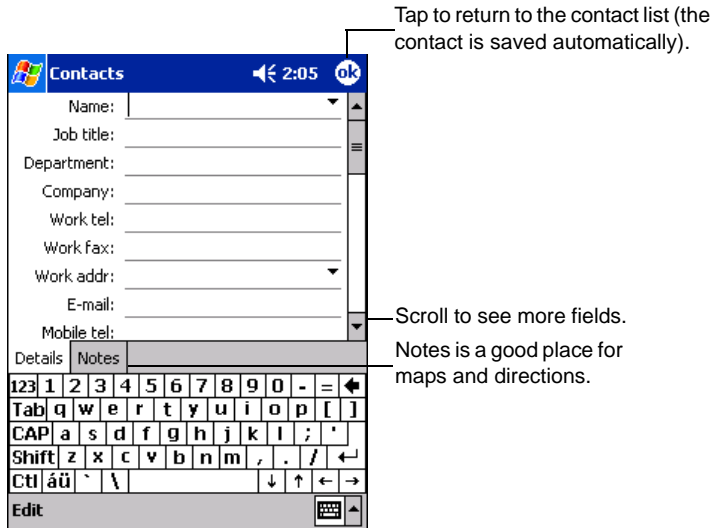
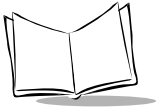


Figure 10-5. Creating a Contact

3. Using the input panel, enter a name and other contact information. Scroll down to see all fields.
4. To assign the contact to a category, scroll to and tap *Categories*. Select a category from the drop-down list. In the contact list, you can display contacts by category.
5. To add notes, tap the *Notes* tab. You can enter text, draw, or create a recording. For more information on creating notes, see [Notes](#) on page 10-12.
6. When finished, tap **OK** to return to the contact list.



You may find a contact in one of four ways:

- In the contact list, enter a contact name in the box under the navigation bar. To show all contacts again, clear text from the box or tap the button to the right of the box.
- In the contact list, tap the category list (labeled All Contacts by default) and select the type of contact to display. To show all contacts again, select *All Contacts*. To view a contact not assigned to a category, select *None*.
- To view the names of companies your contacts work for, in the contact list, tap *View - By Company*. The number of contacts that work for that company appears to the right of the company name.
- Tap *Start - Find*, enter the contact name, select *Contacts* for the type, then tap *Go*.

Using the Summary Screen

When you tap a contact in the contact list, a summary screen displays. Tap *Edit* to change the information.

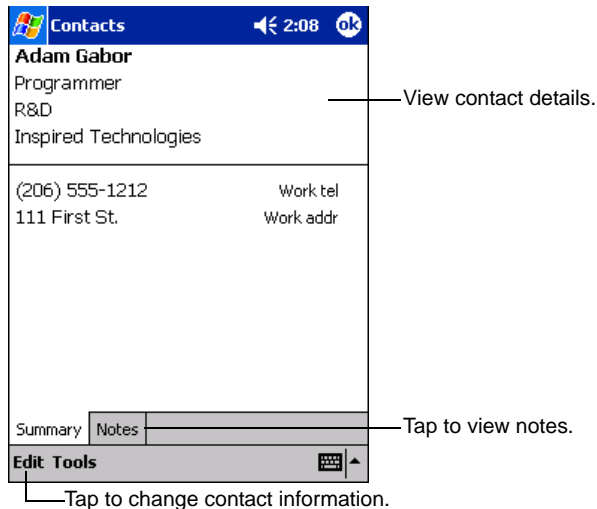


Figure 10-6. Contacts Summary Screen

Tasks

Use Tasks to keep a “to do” list.

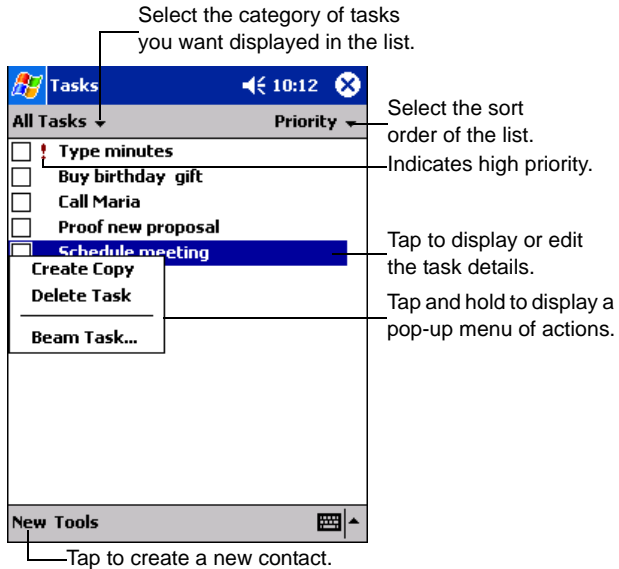


Figure 10-7. Task Application

Note: To change the way information displays in the list, tap Tools - Options.

To create a task:

1. Tap *Start - Tasks* to open the application.



2. Tap New.

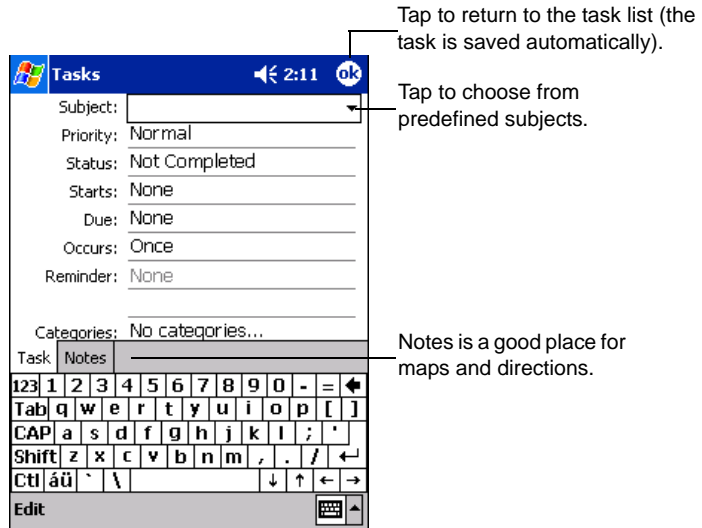


Figure 10-8. Creating a Task

3. Using the input panel, enter a description in the *Subject* field.
4. You can enter a start date and due date or enter other information by first tapping the field. If the input panel is open, hide it to see all available fields.
5. To assign the task to a category, tap *Categories* and select a category from the list. In the task list, you can display tasks by category.
6. To add notes, tap the *Notes* tab. You can enter text, draw, or create a recording. For more information on creating notes, see [Notes](#) on page 10-12.
7. Tap **OK** to return to the task list.

Note: To create a task with only a subject, tap Tools - Entry Bar. Then tap in the Tap here to add a new task field and enter your task information.

Using the Summary Screen

When you tap a task in the task list, a summary screen displays. To change the task, tap *Edit*.

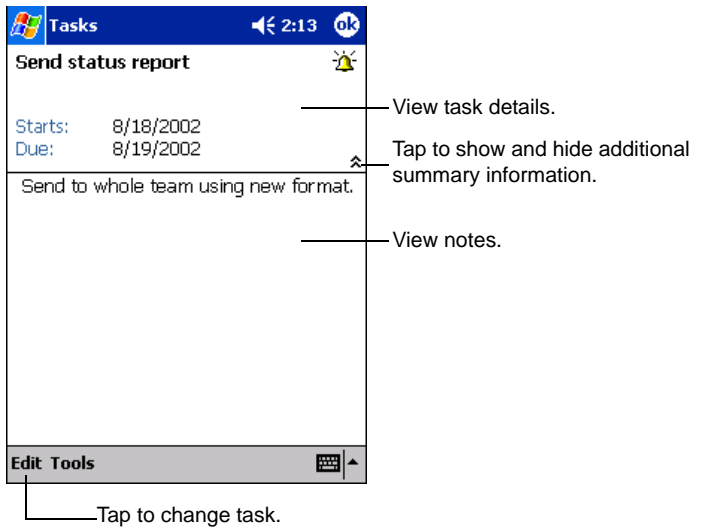
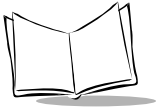


Figure 10-9. Task Summary Screen



Notes

Capture thoughts, reminders, ideas, drawings, and phone numbers with Notes. You can create a written note or a recording. You can also include a recording in a note. If a note is open when you create the recording, it is included in the note as an icon. If the note list is displayed, it is created as a stand-alone recording.

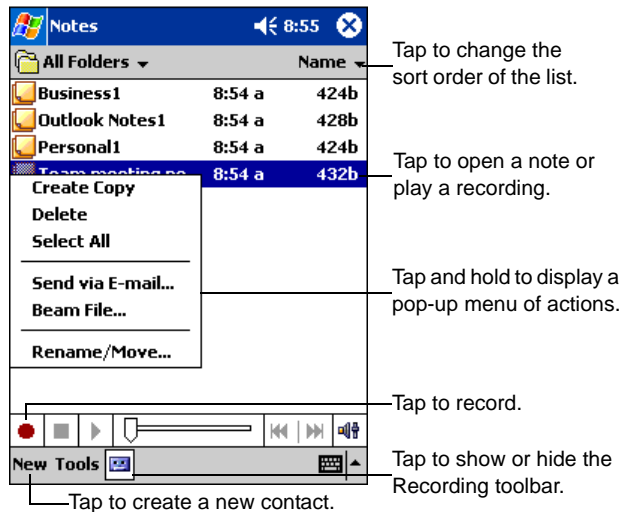


Figure 10-10. Notes Application

To create a note:

1. Tap *Start - Notes* to open the application.
2. Tap *New*.
3. Create your note by writing, drawing, typing, and recording. For more information about using the input panel, writing and drawing on the screen, and creating recordings, see [Chapter 2, Operating the PPT 8800](#).

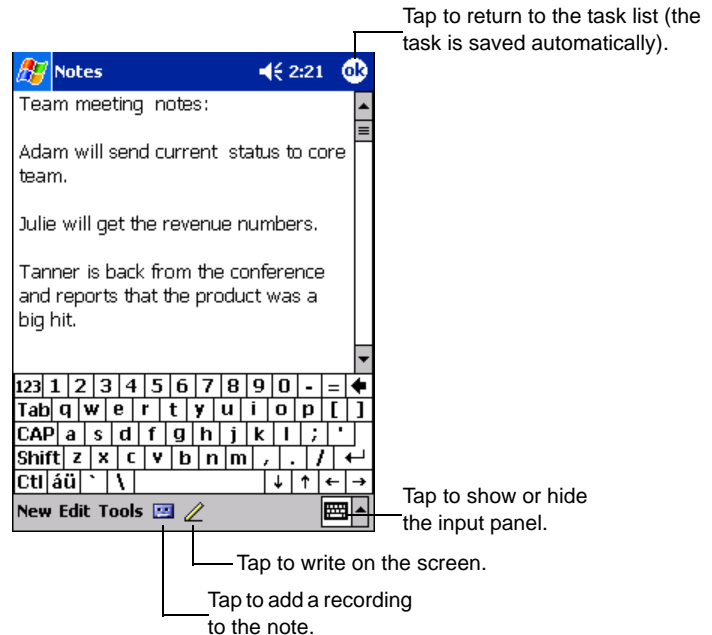


Figure 10-11. Creating a Note



Inbox

Use Inbox to send and receive e-mail messages in the following ways:

- Synchronize e-mail messages with Microsoft Exchange or Outlook on your host computer.
- Send and receive e-mail messages by connecting directly to an e-mail server through an Internet service provider (ISP) or a network.

Synchronizing E-mail Messages

To synchronize e-mail messages, first enable Inbox synchronization in ActiveSync options. For information on enabling Inbox synchronization, see ActiveSync Help on the host computer.

During synchronization:

- E-mail messages are copied from the Inbox folder of Exchange or Outlook on your host computer to the ActiveSync folder on your terminal. By default, you receive messages from the last three days only, the first 100 lines of each message, and file attachments of less than 100 KB in size.
- E-mail messages in the Outbox folder on your terminal are transferred to Exchange or Outlook, then sent from those programs.
- E-mail messages in subfolders must be selected in ActiveSync on your host computer to be transferred.

Connecting Directly to an E-mail Server

You can set up a connection to an e-mail server to send and receive e-mail messages using a network connection and Inbox on your terminal.

Note: *The ISP or network must use a POP3 e-mail server and an SMTP gateway.*

When you connect to the e-mail server, new messages are downloaded to the terminal Inbox folder, messages in the terminal Outbox folder are sent, and messages that were deleted on the e-mail server are removed from the terminal Inbox.

Messages that you receive directly from an e-mail server are linked to your e-mail server rather than your host computer. When you delete a message on your terminal, it's also deleted from the e-mail server the next time you connect.

You can work online or offline. When working online, you read and respond to messages while connected to the e-mail server. Messages are sent as soon as you tap *Send*, which saves space on your terminal.

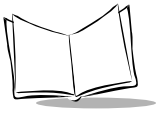
When working offline, once you've downloaded new message headers or partial messages, you can disconnect from the e-mail server, then decide which messages to download completely. The next time you connect, Inbox downloads the complete messages you've marked for retrieval and sends the messages you've created.

You can use multiple e-mail services to receive your messages. For each e-mail service you intend to use, first set up and name the e-mail service. If you use the same service to connect to different mailboxes, set up and name each mailbox connection.

Setting Up an E-mail Service

In Inbox on your terminal, tap *Accounts*, then *New Account*. Follow the instructions in the wizard on the screen. For an explanation of a screen, tap *Start*, then *Help*.

When finished, tap *Accounts*, then *Connect* to connect to your e-mail server. For more information on using the Inbox program, see [Inbox](#) on page 10-14.



Using the Message List

Messages you receive display in the message list box. By default, the most recently received messages are listed first.

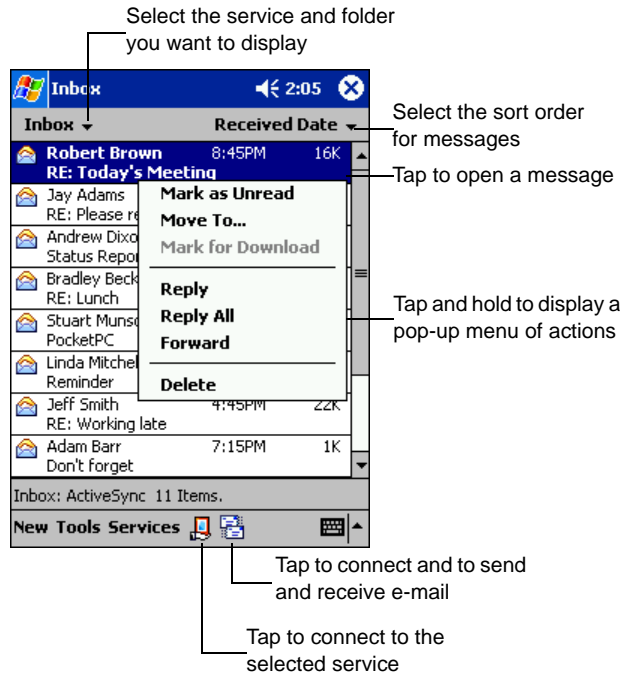


Figure 10-12. Inbox Application

When you receive a message, tap it in the list box to open it. Unread messages display in bold.

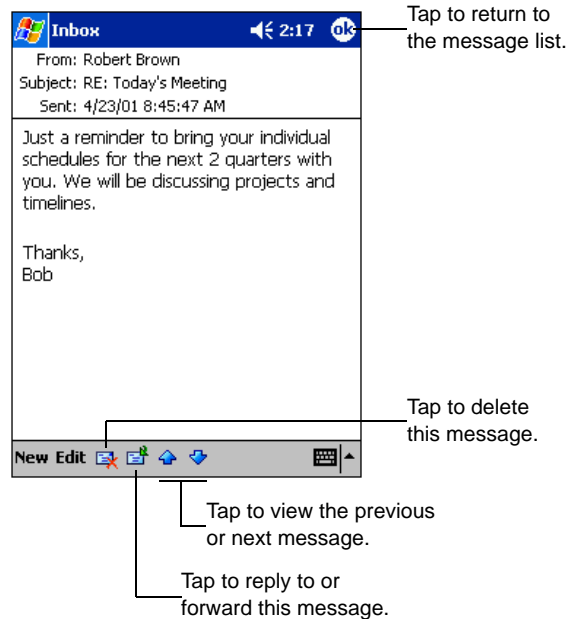


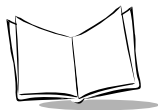
Figure 10-13. Viewing a Message

When you connect to your e-mail server or synchronize with your host computer, Inbox downloads by default only messages from the last three days, the first 100 lines of each new message, and file attachments of less than 100 KB in size. The original messages remain on the e-mail server or your host computer.

You can mark the messages that you want to retrieve completely the next time you synchronize or connect to your e-mail server. In the message list, tap and hold the message you want to retrieve. On the pop-up menu, tap *Mark for Download*. The icons in the Inbox message list indicates message status.

You specify your downloading preferences when you set up the service or select your synchronization options. You can change them at any time:

- Change options for Inbox synchronization using ActiveSync options. For more information, see ActiveSync Help.



- Change options for direct e-mail server connections in Inbox on your terminal. Tap *Tools - Options*. On the *Accounts* tab, tap the account you want to change. Tap and hold the account and select *Delete* to remove it.

Creating E-mail Messages

To create an e-mail message:

1. Tap *New*.
2. In the *To* field, enter an e-mail or SMS address of one or more recipients, separating each with a semicolon, or select a name from the contact list by tapping the *Address Book* icon. All e-mail addresses entered in the e-mail fields in *Contacts* appear in the *Address Book*.

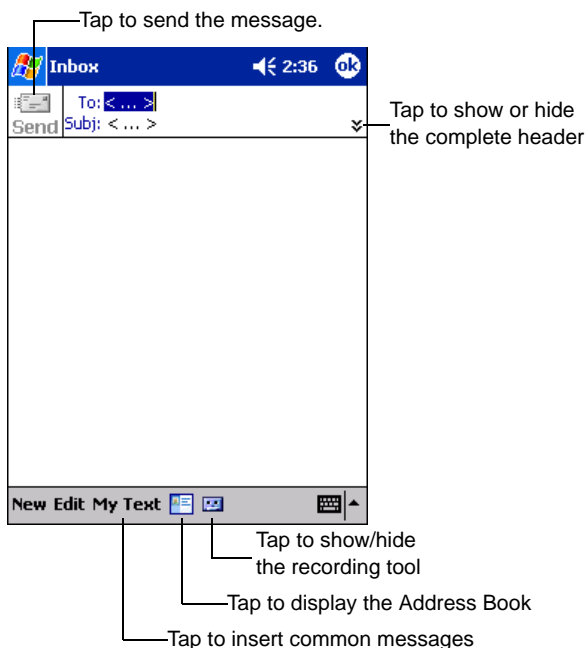


Figure 10-14. Creating a Message

3. Enter your message. To enter preset or frequently used messages, tap *My Text* and select a message.
4. Tap *Send* when you're finished. If you're working offline, the message is transferred to the *Outbox* folder and sent the next time you synchronize.

If you are sending an SMS message and want to know if it was received, tap *Edit - Options*, and select the *Request SMS text message delivery notification* checkbox before sending the message.

Managing E-mail Messages and Folders

By default, messages are displayed in one of five folders for each account you've created: Inbox, Deleted Items, Drafts, Outbox, and Sent Items. The Deleted Items folder contains messages that have been deleted on the terminal. The behavior of the Deleted and Sent Items folders depends on the options you selected. In the message list, tap *Tools - Options*. On the *Message* tab, select your options.

To organize messages into additional folders, tap *Tools - Manage Folders* to create new folders. To move a message to another folder, in the message list, tap and hold the message, then tap *Move to* on the pop-up menu.

Folder Behavior with ActiveSync and Direct Connection to Server

The behavior of the folders you create depends on whether you are using ActiveSync, SMS, POP3, or IMAP4.

- If you use ActiveSync, e-mail messages in the Inbox folder in Outlook are automatically synchronized with your terminal. You can select to synchronize additional folders by designating them for ActiveSync. The folders you create and the messages you move are mirrored on the server. For example, if you move two messages from the Inbox folder to a folder named Family, and you have designated Family for synchronization, the server creates a copy of the Family folder and copies the messages into that folder. You can then read the messages while away from your host computer.
- If you use SMS, messages are stored in the Inbox folder.
- If you use POP3 and you move e-mail messages to a folder you created, the link is broken between the messages on your terminal and their copies on the mail server. The next time you connect, the mail server notes the messages missing from the terminal Inbox and deletes them from the server. This prevents you from having duplicate copies of a message, but it also means that you no longer have access to messages moved to folders created from anywhere except the terminal.
- If you use IMAP4, the folders you create and the e-mail messages you move are mirrored on the server. Therefore, messages are available to you anytime you connect to your mail server, whether it is from your terminal or host computer. This synchronization of folders occurs whenever you connect to your mail server, create new folders, or rename/delete folders when connected.



Pocket Word

Pocket Word works with Microsoft Word on your host computer to give you access to copies of your documents. You can create new documents on your terminal, or copy documents from your host computer to your terminal. Synchronize documents between your host computer and your terminal so that you have the most up-to-date information in both locations.

To create a new document in Pocket Word, such as a letter, meeting minutes, or a trip report, tap *Start - Programs - Pocket Word - New* icon. A blank document appears. Or, if you've selected a template for new documents in the *Options* dialog box, that template appears with appropriate formatting applied. You can open only one document at a time; when you open a second document, you'll be asked to save the first. You can save a document in a variety of formats, including Word (.doc), Pocket Word (.psw), Rich Text Format (.rtf), and Plain Text (.txt).

Pocket Word contains a list of the files stored on your terminal. Tap a file in the list to open it. To delete, make copies of, or send a file, tap and hold a file in the list. Then, select the appropriate action on the pop-up menu.

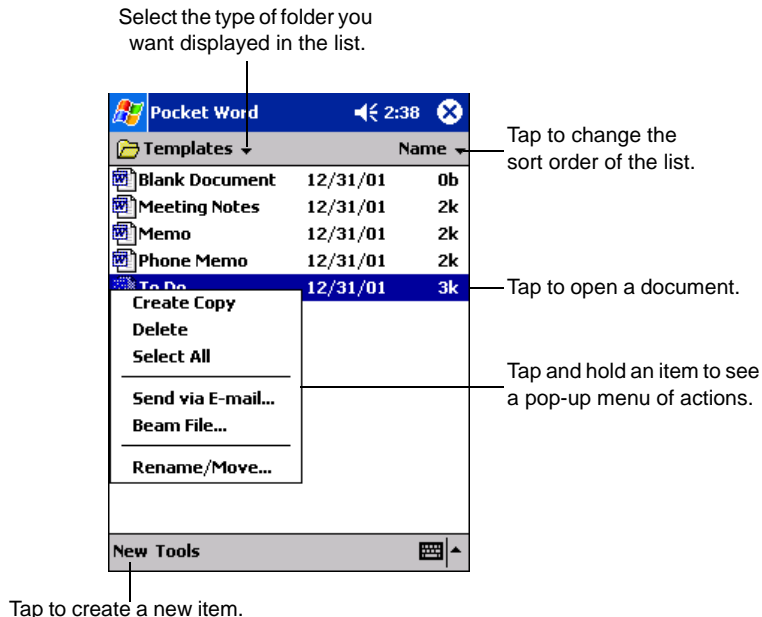


Figure 10-15. Using Pocket Word

You can enter information in Pocket Word in one of four modes (writing, drawing, typing, and recording) displayed on the *View* menu. Tap the *Show/Hide Toolbar* icon on the command bar to show or hide each mode's toolbar.

To change the zoom magnification, tap *View - Zoom*. Select the percentage. Select a higher percentage to enter text and a lower one to see more of your document.

If you're opening a Word document created on a host computer, tap *View - Wrap to Window* to see the entire document.

Typing Mode

Use the input panel to enter typed text into a document. See [Entering Information](#) on page 2-23 for more information.

To format or edit text, select the text using your stylus instead of the mouse to drag across the text. To search a document for the text you want, tap *Edit - Find/Replace*.

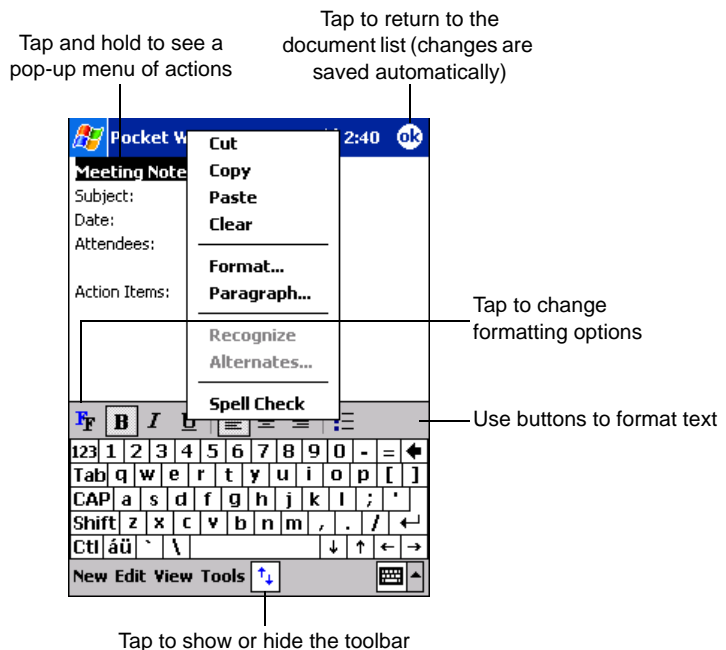
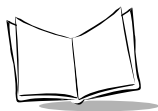


Figure 10-16. Formatting Text



Writing Mode

In writing mode, use your stylus to write directly on the screen. Ruled lines are displayed as a guide, and the zoom magnification increases to allow you to write more easily. For more information, see [Writing on the Screen](#) on page 2-26.

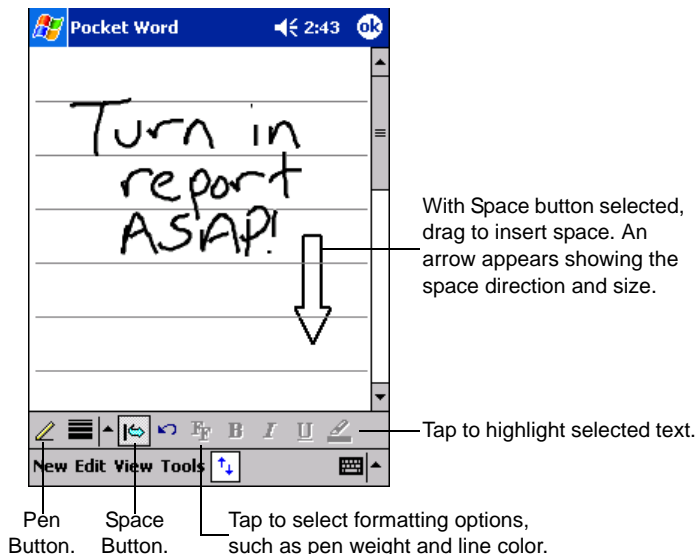


Figure 10-17. Writing on the Screen in Pocket Word

If you cross three ruled lines in a single stylus stroke, the writing becomes a drawing, and can be edited and manipulated as described in the following section.

Written words are converted to graphics (metafiles) when a Pocket Word document is converted to a Word document on your host computer.

Drawing Mode

In drawing mode, use your stylus to draw on the screen. Gridlines appear as a guide. When you lift your stylus after the first stroke, a drawing box indicates the boundaries of the

drawing. Every subsequent stroke within or touching the drawing box becomes part of the drawing. For more information, see [Drawing on the Screen](#) on page 2-31.

Select Shape on the pop-up menu to convert objects to proper shapes.

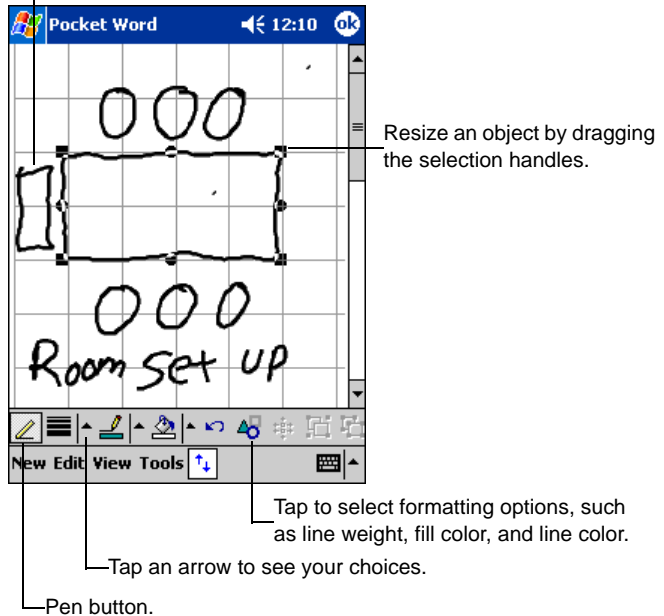
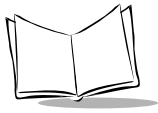


Figure 10-18. Drawing on the Screen in Pocket Word

Recording Mode

In recording mode, you may embed a recording into your document. Recordings are saved as .wav files. For more information, see [Recording a Message](#) on page 2-32.

For more information on using Pocket Word, tap *Start - Help*.



Pocket Excel

Pocket Excel works with Microsoft Excel on your host computer to provide easy access to copies of your workbooks. You can create new workbooks on your terminal, or copy workbooks from your host computer to your terminal. Synchronize workbooks between your host computer and your terminal so you have up-to-date content in both locations.

To create a new workbook in Pocket Excel, such as an expense report or mileage log, tap *Start - Programs - Pocket Excel - New*. A blank workbook appears. Or, if you've selected a template for new workbooks in the *Options* dialog box, that template appears with appropriate text and formatting already provided. You can open only one workbook at a time; when you open a second workbook, you'll be asked to save the first. You can save a workbook in a variety of formats, including Pocket Excel (.pxl) and Excel (.xls).

Pocket Excel lists the files stored on your terminal. Tap a file in the list to open it. To delete, make copies of, or send a file, tap and hold a file in the list, then select the appropriate action from the pop-up menu.

Pocket Excel provides fundamental spreadsheet tools, such as formulas, functions, sorting, and filtering. To display the toolbar, tap *View - Toolbar*.

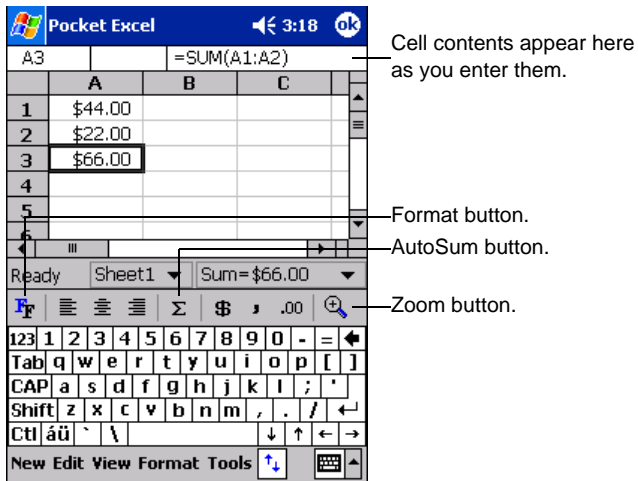


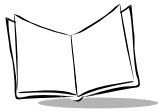
Figure 10-19. Using Pocket Excel

If your workbook contains sensitive information, you can protect it with a password. Open the workbook, tap *Edit - Password*. Every time you open the workbook, you must enter the password, so choose one easy for you to remember but hard for others to guess.

Tips for Working in Pocket Excel

When working in large worksheets in Pocket Excel:

- View in full-screen mode to see as much of your worksheet as possible. Tap *View - Full Screen*. To exit full-screen mode, tap *Restore*.
- Show and hide window elements. Tap *View*, then the elements you want to show or hide.
- Freeze panes on a worksheet. First select the cell where you want to freeze panes. Tap *View - Freeze Panes*. You may want to freeze the top and leftmost panes in a worksheet to keep row and column labels visible as you scroll through a sheet.
- Split panes to view different areas of a large worksheet. Tap *View - Split*. Drag the split bar to where you want it. To remove the split, tap *View - Remove Split*.
- Show and hide rows and columns. To hide a row or column, select a cell in that row or column. Tap *Format - Row* or *Column - Hide*. To show a hidden row or column,



tap *Tools - Go To*, then type a reference that is in the hidden row or column. Tap *Format - Row or Column - Unhide*.

For more information on using Pocket Excel, tap *Start - Help*.

MSN[®] Messenger

With the MSN Messenger instant messaging program on your terminal you can:

- see who is online
- send and receive instant messages
- have instant message conversations with groups of contacts.

To use MSN Messenger, you need a Microsoft Passport™ account or a Microsoft Exchange e-mail account. You need a Passport to use MSN Messenger Service. If you have a Hotmail® or MSN account, you already have a Passport. Once you have either a Microsoft Passport or a Microsoft Exchange account, you can set up your account.

To switch to MSN Messenger, tap *Start - Programs - MSN Messenger* icon.

Setting Up Your Account

Before you can connect, set up the Passport or Exchange account and sign in:

1. Tap *Tools - Options*.
2. Enter your e-mail address and password.
3. Tap **Sign In**.

If you use MSN Messenger on your host computer, your contacts automatically appear on your terminal.

Working with Contacts

The MSN Messenger window is divided into Online and Not Online categories. From this view, while connected, you can chat, send e-mail, block the contact from chatting with you, or delete contacts from your list using the pop-up menu.

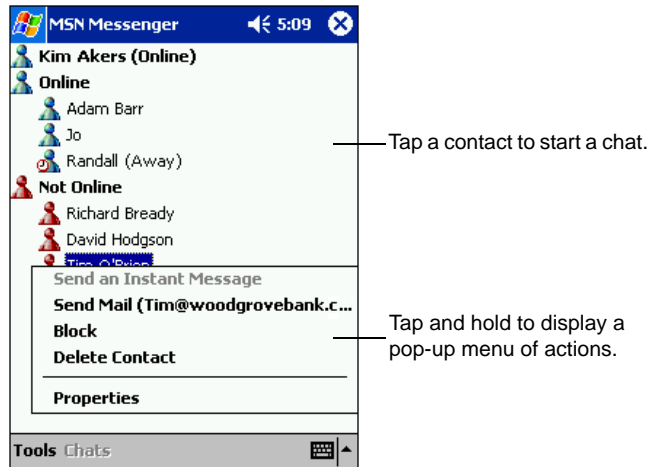


Figure 10-20. MSN Messenger Contacts

Note: *To see others online without being seen, tap Tools - My Status - Appear Offline. You appear offline but remain on the blocked contact's list.*

To unblock a contact, tap and hold the contact, then tap Unblock on the pop-up menu.



Chatting with Contacts

Tap a contact name to open a chat window. Enter your message in the text entry area at the bottom of the screen, or tap *My Text* to enter a preset message, and tap **Send**. To invite another contact to a multi-user chat, tap *Tools - Invite* and tap the contact you want to invite.

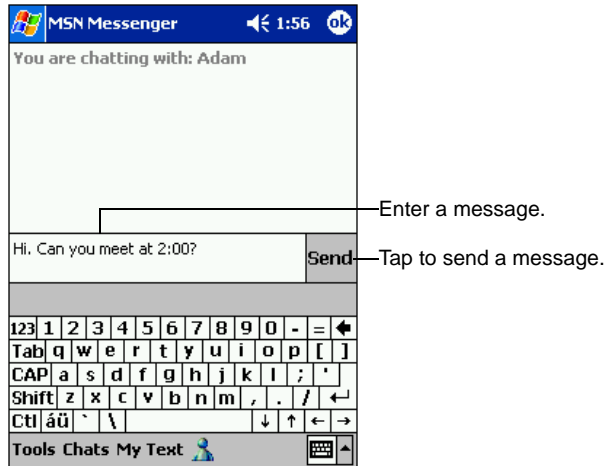


Figure 10-21. Sending a Message

To switch back to the main window without closing a chat, tap *Contacts*. To revert back to your chat window, tap *Chats* and select the person you were chatting with.

To know if the contact you are chatting with is responding, look for the message under the text entry area.

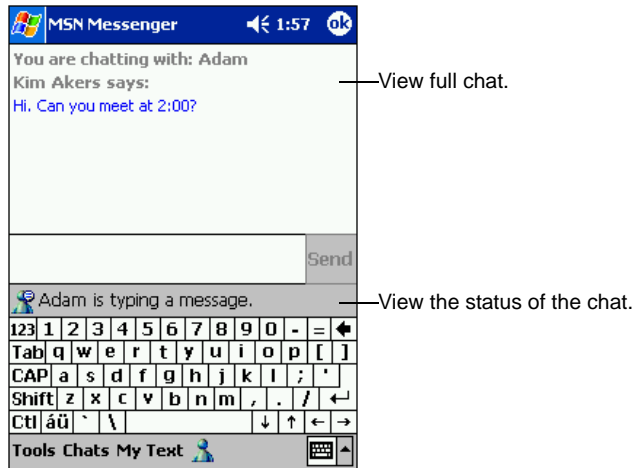


Figure 10-22. Receiving a Message

For more information on using MSN Messenger, tap *Start - Help*.



Windows Media Player

With Windows Media Player on your terminal you can play digital audio and video files that are stored on your terminal. To switch to Windows Media Player, tap *Start - Windows Media*.

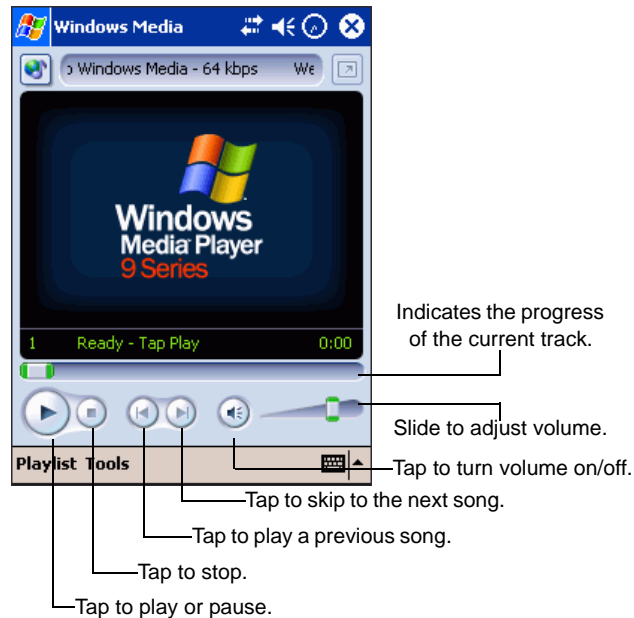


Figure 10-23. Using Windows Media Player

Use your host computer to copy digital audio and video files to your terminal. Your terminal can play Windows Media and MP3 files.

For more information on using Windows Media Player, tap *Start - Help*.

Microsoft Reader

Use Microsoft Reader to read eBooks on your terminal. Download books to your host computer from your favorite eBook Web site. Then, use ActiveSync to copy the book files to your terminal. The books appear in the Reader Library, where you can tap them in the list to open them.

Each book consists of a cover page, an optional table of contents, and the pages of the book. You can:

- Page through the book by using the Up/Down control on your device or by tapping the page number on each page.
- Annotate the book with highlighting, bookmarks, notes, and drawings.
- Search for text and look up definitions for words.

To switch to Microsoft Reader, tap *Start - Programs - Microsoft Reader*.

Getting Books on Your Device

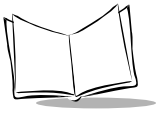
You can download book files from the Web. Just visit your favorite eBook retailer and follow the instructions to download the book files. Use ActiveSync to download the files from your host computer to your terminal as described in the Read Me file in the MSReader folder.

Using the Library

The Library is your Reader home page; it displays a list of all books stored on your terminal. To open the Library:

1. On the Reader command bar, tap **Library**.
2. On a book page, tap the book title, and then tap *Library* on the pop-up menu.
3. To open a book, tap its title in the *Library* list box.



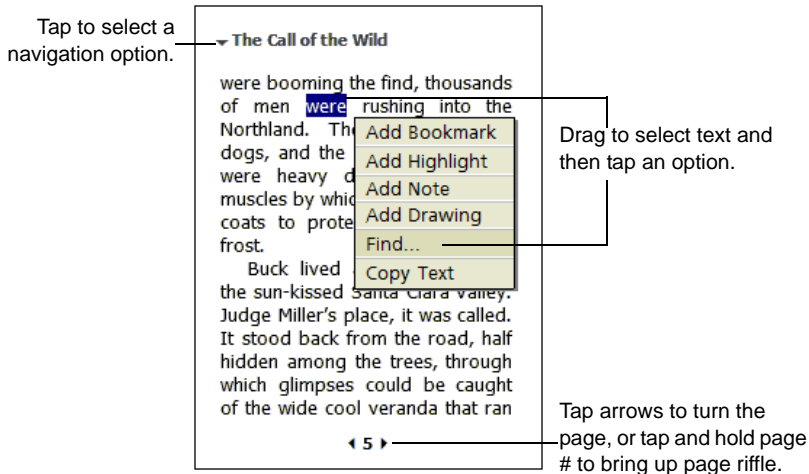


Reading a Book

Each book consists of a cover page, an optional table of contents, and the pages of the book. Navigation options are listed in the bottom portion of the cover page.

The first time you open a book, you'll probably want to go to the first page or to the table of contents, if there is one. Subsequently, whenever you open the book, you'll be automatically taken to the last page read.

In addition to the text, each book page includes a page number and book title.



You can also page through a book using the Up/Down arrow keys on the keypad of your terminal.

Using Reader Features

Reading a book electronically gives you several options not available with paper books. These options are available from any book page.

- Select text by dragging across the text on the page. Then, tap an option on the pop-up menu, as described here:
 - Search for Text. Find text in a book by tapping Find on the pop-up menu. Enter the word you want to search for, and tap the desired Find option. Reader highlights found text on the page. To close Find, tap outside the box. To return to your original page, tap the title and then tap *Return* on the pop-up menu.
 - Copy Text. You can copy text from books that support this feature into any

program that accepts text. On a book page, select the text you want to copy. Then, tap *Copy Text* on the pop-up menu. The text can be pasted into the program of your choice.

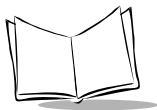
- **Bookmarks.** When you add a bookmark to a book, a color-coded bookmark icon appears in the right margin. You can add multiple bookmarks to a book. Then, from anywhere in the book, tap the bookmark icon to go to the bookmarked page.
- **Highlights.** When you highlight text, it appears with a colored background.
- **Notes.** When you attach a note to text, you enter the text in a note pad that appears on top of the book page. A *Note* icon displays in the left margin. To show or hide the note, tap the icon.
- **Drawings.** When you add a drawing, a *Drawing* icon appears in the bottom-left corner of the page, and drawing tools appear across the bottom of the page. Draw by dragging your stylus.
- To see a list of a book's annotations, including bookmarks, highlights, text notes, and drawings, tap *Annotations Index* on the book's cover page. You can tap an entry in the list to go to the annotated page.

Removing a Book

When you finish reading a book, you can delete it to conserve space on your terminal. If a copy of the book is stored on your host computer, you can download it again at any time.

To remove a book from your device, tap and hold the title in the Library list, and then tap *Delete* on the pop-up menu.

For more information on using Microsoft Reader, tap *Start - Help*.



Pocket Internet Explorer

With Microsoft Pocket Internet Explorer, you can view Web or Wireless Application Protocol (WAP) pages in the following ways:

- During synchronization with your host computer, download your favorite links and mobile favorites stored in the Mobile Favorites subfolder in Internet Explorer on the host computer.
- Connect to an Internet service provider (ISP) or network and browse the Web. First create the connection (see [Connecting to the Internet on a Wireless Network](#) on page 4-29).

To select Pocket Internet Explorer, tap *Start - Internet Explorer*.

Mobile Favorites

Items stored in the Mobile Favorites subfolder in the Favorites folder in Internet Explorer on your host computer are synchronized with your terminal. This folder was created automatically when you installed ActiveSync.

Favorite Links

Synchronization updates the list of favorite links both in the Mobile Favorites folder on your host computer and in Pocket Internet Explorer on your terminal. Unless you mark the favorite link as a mobile favorite, only the link is downloaded to your terminal; you must connect to your ISP or network to view the content. For more information on synchronization, see ActiveSync Help on the host computer.

Creating Mobile Favorites

If you are using Microsoft Internet Explorer 5 or later on your host computer, you can download mobile favorites. Synchronizing mobile favorites downloads Web content to your terminal so you can view Web pages while disconnected from your ISP and host computer.

Use the Internet Explorer plug-in installed with ActiveSync to create mobile favorites:

1. In Internet Explorer on your host computer, click *Tools - Create Mobile Favorite*.
2. To change the link name, enter a new name in the *Name* field.
3. If desired, select a desired update schedule in *Update*.
4. Click **OK**. Internet Explorer downloads the latest version of the Web page to your host computer.

5. To download the pages linked to the mobile favorite you just created, in Internet Explorer on the host computer, right-click the mobile favorite, then click *Properties*. On the *Download* tab, specify the number of links deep you want to download. To conserve terminal memory, only go one level deep.
6. Synchronize your terminal and host computer. Mobile favorites stored in the Mobile Favorites folder in Internet Explorer are downloaded to your terminal.

If you did not specify an update schedule in step 3, you must manually download content to keep the information updated on your host computer and terminal. Before synchronizing, in Internet Explorer on your host computer, click *Tools - Synchronize*. Note the last time content was downloaded to the host computer; if necessary, manually download content.

You can add a button to the Internet Explorer toolbar for creating mobile favorites. In Internet Explorer on your host computer, click *View - Toolbars - Customize*.

Saving Memory on your Terminal

Mobile favorites take up storage memory on your terminal. To minimize the amount of memory used:

- In the settings for the Favorites information type in ActiveSync options, turn off pictures and sounds or stop some mobile favorites from downloading. For more information, see ActiveSync Help.
- Limit the number of downloaded linked pages. In Internet Explorer on the host computer, right-click the mobile favorite you want to change, then select *Properties*. On the *Download* tab, specify 0 or 1 for the number of linked pages to download.

Using AvantGo Channels

AvantGo is a free interactive service that gives you access to personalized content and thousands of popular Web sites. Subscribe to AvantGo channels directly from your terminal, then synchronize with your host computer, or connect to the Internet to download the content. For more information, visit the AvantGo Web site.

To sign up for AvantGo:

1. In ActiveSync options on the host computer, turn on synchronization for the AvantGo information type.
2. In Pocket Internet Explorer on your terminal, tap *Favorites* icon to display your list of favorites.



3. Tap *AvantGo Channels*.
4. Tap **Activate**.
5. Follow the directions on the screen. You must synchronize your terminal with your host computer, then tap **My Channels** to complete setup.

When synchronization is complete, tap *AvantGo Channels* in your list of favorites to see a few of the most popular channels. To add or remove channels, tap *Add* or *Remove*.

Using Pocket Internet Explorer

With Pocket Internet Explorer, you can browse mobile favorites and channels downloaded to your terminal without connecting to the Internet. You can also connect to the Internet through an ISP or a network connection and browse the Web.

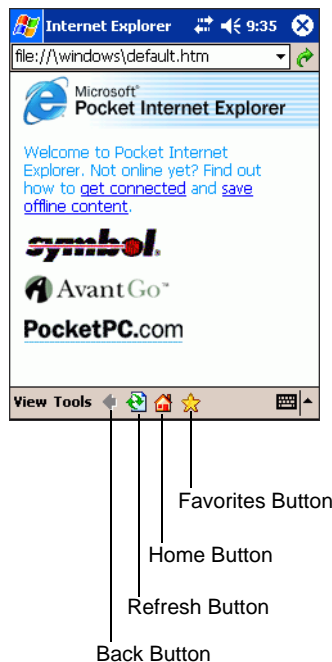


Figure 10-24. Pocket Internet Explorer

To view mobile favorites and channels, tap *Favorites* icon to display your list of favorites, then tap the page you want to view.

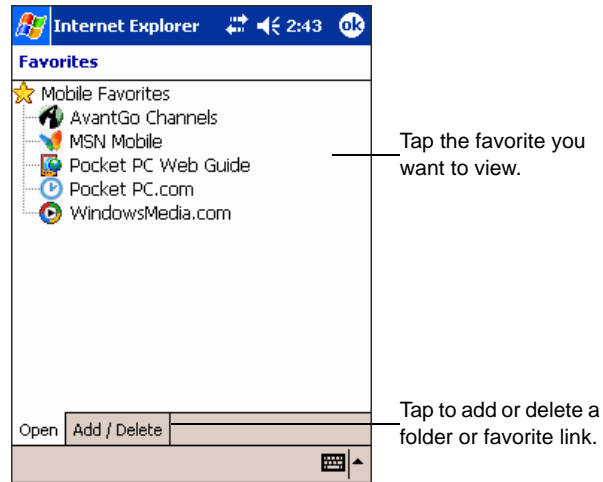
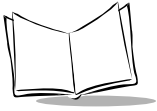


Figure 10-25. Mobile Favorites

You'll see the page that was downloaded the last time you synchronized with your host computer. If the page is not on your terminal, the favorite is dimmed. Synchronize with your host computer again to download the page to your terminal, or connect to the Internet to view the page.



Browsing the Web

1. Connect to your ISP or network using a Spectrum24 connection; see [Connecting to the Internet on a Wireless Network](#) on page 4-29.
2. Once connected, go to a specific Web page in one of the following ways:
 - Tap *Favorites*, then tap the favorite you want to view.
 - In the address bar at the top of the screen, enter the Web address and tap the go button or tap the arrow to choose from previously entered addresses.

Note: *If you select Pocket Internet Explorer before setting up the network connections, a screen may appear allowing you to proceed to the connection settings screen. After you select your settings, you return to Pocket Internet Explorer.*

To add a favorite link while using the terminal, go to the Web page you want to add, tap and hold on the page, and tap Add to Favorites.

Pictures

Use *Pictures* to view .jpg format pictures stored on the terminal, send pictures to others, view a slideshow of your pictures or set a picture as the background on the Today screen.




Copy Pictures to your Device

You can copy .jpg pictures from your PC and view them in *Pictures*.

Copy the picture files from your PC to the My Pictures folder, within the My Documents folder on your terminal. For more information on copying files from your PC to your terminal, see ActiveSync Help on your PC.

Edit Pictures

You can rotate, crop, zoom, and adjust the brightness and color contrast of your .jpg pictures.

1. Tap  to rotate a picture 90 degrees counter-clockwise.
2. Tap  to crop a picture by dragging and selecting the crop area. Tap outside of the box to stop cropping.
3. Tap  to display the Zoom panel, from which you can zoom in or out of a picture, or return a picture to full-screen size.
4. Tap *Edit - Brightness and Contrast* to adjust the brightness and contrast levels of a picture.

Send Pictures

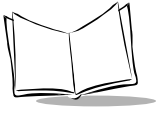
You can send a .jpg picture to others as an e-mail attachment. The picture is resized to approximately 30 KB, making it easier to send over wireless connections.

1. In *Pictures*, tap the picture you want to send as an e-mail attachment.
2. Tap *Tools - Send via E-mail* to create an e-mail message with the picture attached.

Set Picture as Background



You can use one of your own .jpg pictures as the background on the Today screen, and specify how you want it displayed on the screen, such as adjusting the transparency level.

1. In *Pictures*, tap the picture you want to set as the background.
2. Tap *Tools - Set as Today Wallpaper*.




View Pictures

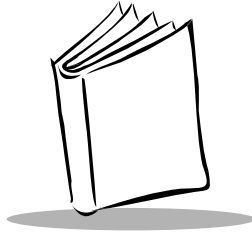
Using Pictures, you can view thumbnails of .jpg pictures stored in your My Pictures folder and select a picture that you want to see in full-screen view.

1. In Pictures, tap the thumbnail of the picture you want to view.
2. Tap  to view pictures stored on a storage card.
3. Tap  to view pictures stored in your My Pictures folder.

View Slideshow of Pictures

You can view your .jpg pictures as a slideshow. Pictures displays slides of the pictures shown in thumbnail view with 5-second intervals between slides.

1. In Pictures, tap  to view pictures as a slideshow.
2. Tap anywhere on the screen to display the Slideshow toolbar, which you can use to pause the slideshow, rotate the view, and more.
3. Press the left/right controls to move forward or backward through the slides.

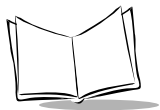


Chapter 11

Software Installation on Development PC

Chapter Contents

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Introduction

To develop applications to run on the terminal, the following are required:

- Symbol Mobility Developer's Kit (SMDK) for Embedded Visual C 4.0 (eVC4)
- Symbol Mobility Developer's Kit (SMDK) for .NET
- Symbol Device Configuration Package (DCP) for PPT 8800.

The SMDK for eVC4 is a development tool used to create native C and C++ applications for all Symbol terminals running the Microsoft Windows Mobile 2003 Software for Pocket PCs operating system. It includes documentation, header files (.H), and library files (.LIB) for native code application development that targets Symbol value-add APIs.

The SMDK for .NET provides all of the tools necessary to develop C# and VB.NET managed applications for Symbol terminals. These tools include class libraries, sample applications, and associated documentation. SMDK for .NET allows Microsoft® .NET Compact Framework developers to programmatically access the Symbol value-add features of the terminal.

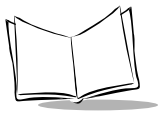
The DCP provides the Product Reference Guide (PRG), flash partitions, Terminal Configuration Manager (TCM) and the associated TCM scripts. With this package hex images that represent flash partitions can be created and downloaded to the terminal.

The minimum system configuration required to install the SMDK and DCP is:

- IBM-compatible host computer with Pentium 450 MHz processor or higher
- Microsoft Windows XP or Microsoft Windows 2000 operating system
- 128 MB RAM
- 100 MB available hard disk space
- CD-ROM drive
- One available serial port
- Mouse
- ActiveSync software, available at <http://www.microsoft.com>.

In order to install the SMDK for eVC4, the following components must first be installed on the development PC:

- Microsoft Windows XP or Windows 2000
- Microsoft Embedded Visual C++ v4.0 with SP2



- Microsoft Windows Mobile 2003 SDK
- Microsoft ActiveSync version 3.7 or higher
- Adobe® Acrobat® Reader® 3.0 or higher.

In order to install the SMDK for .NET, the following components must first be installed on the development PC:

- Microsoft® Windows 2000 or Microsoft® Windows XP
- Microsoft® Visual Studio .NET 2003
- Microsoft® Visual Studio .NET 2003 Add-on Pack*
- Microsoft® ActiveSync 3.7 or higher
- Adobe® Acrobat® Reader® 3.0 or higher.

* To connect Microsoft Visual Studio .NET 2003 to terminals running Windows CE 4.1:

1. Download and install the “Windows CE Utilities for Visual Studio .NET 2003 Add-on Pack” from Microsoft.
2. From the *Tools* menu, select *Select Windows Device CPU* and change the targeted CPU type from to ARMV4T for PPT8800 4.1 devices.
3. Restart your computer to be sure that the new settings take effect.

The SMDK for eVC4 contains the components listed in [Table 11-1](#).

Table 11-1. SMDK for eVC4 Contents and Location

Components	Directory Location
Readme/Release Notes/License	\Program Files\Symbol Mobility Developer Kit v1.0 for eVC4\
C\C++ Samples (Standard)	\Program Files\Symbol Mobility Developer Kit v1.0 for eVC4\Samples\evc\standard
C\C++ Samples (Basic)	\Program Files\Symbol Mobility Developer Kit v1.0 for eVC4\Samples\evc\basic
HTML Help (APIs)	\Program Files\ Symbol Mobility Developer Kit v1.0 for eVC4\
Symbol Libraries (.LIB)	\Program Files\Windows CE Tools\wce420\POCKET PC 2003\Lib\armv4
Symbol Headers (.H)	\Program Files\Windows CE Tools\wce420\POCKET PC 2003\Include\armv4

Table 11-1. SMDK for eCV4 Contents and Location (Continued)

Components	Directory Location
Start Menu	\Documents and Settings\All Users\Start Menu\Programs
Readme	
Help	
Samples	
WEB Updates	

The SMDK for .NET contains the components listed in [Table 11-1](#).

Table 11-2. SMDK for .NET Contents and Location

Components	Directory Location
Class library assemblies	\Program Files\Microsoft Visual Studio .NET 2003\CompactFrameworkSDK\v1.0.5000\Windows CE
Forms source code	\Program Files\Symbol Mobility Developer Kit for .NET\v1.1\Windows CE\Source
Sample applications	\Program Files\Symbol Mobility Developer Kit for .NET\v1.1\Windows CE\Samples
Help files	\Program Files\Symbol Mobility Developer Kit for .NET\v1.1\Windows CE\Help Files
Updates to native drivers	\Program Files\Symbol Mobility Developer Kit for .NET\v1.1\Windows CE\DriverUpdates
CAB files	\Program Files\Symbol Mobility Developer Kit for .NET\v1.1\Windows CE\MassDeployment

The DCP contains the components listed in [Table 11-3](#).

Table 11-3. DCP Contents and Locations

Components	Directory Location
TCM (and INI file)	\Program Files\Symbol\TCM
Readme/Release Notes/License	\Program Files\Symbol Device Configurations\PPT 8800\v1.0

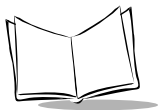


Table 11-3. DCP Contents and Locations (Continued)

Components	Directory Location
Product Reference Guide	\Program Files\Symbol Device Configurations\PPT 8800\v1.0
HexImages	\Program Files\Symbol Device Configurations\PPT 8800\v1.0\Hex Images
Flash File Folders	\Program Files\Symbol Device Configurations\PPT 8800\v1.0\Flash Folders
Tools (ex Keyboard remap, if any)	\Program Files\Symbol Device Configurations\PPT 8800\v1.0\Tools
TCM Scripts	\Program Files\Symbol Device Configurations\PPT 8800\v1.0\TCMScripts
Start Menu	\Documents and Settings\All Users\Start Menu\Programs
Readme	
PRG	
TCM PPT 8800	
WEB Updates	

The SMDK and DCP are available from the Symbol Developer's Zone web site, <http://devzone.symbol.com>.

Installing Other Development Software

Developing applications for the terminal may require installing other development software such as application development environments on the development PC. Follow the installation instructions provided with this software.

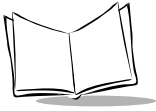


Chapter 12

Configuring the Terminal

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Introduction

Terminal Configuration Manager (TCM) is an application that allows developers to customize flash file system partitions for the terminal. The most common use is to create an Application partition hex file that contains the customer's application. TCM can also be used to load hex files to the flash memory of the terminal.

The program resident on the terminal that receives the hex file and burns it to the flash memory is called Initial Program Loader (IPL).

The customization of partitions is controlled by TCM scripts. The scripts contain all of the necessary information for building an image. The script is essentially a list of copy commands specifying the files to copy from the host computer to the partition.

TCM works with a pair of directory windows, one displaying the script and the other displaying the source files resident on the host computer. Using standard windows drag and drop operations, files can be added and deleted from the script window.

The Device Configuration Package (DCP) includes scripts used by Symbol Technologies to build the standard Platform and Application partitions that are resident on the terminal when the terminal ships from the factory. The standard Platform partition contains drivers while the Application partition contains Demo applications and optional components. The standard TCM scripts can be found in the following folder:

`\Program Files\Symbol Device Configurations\PPT 8800\v1.0\TCMScripts`

The process for building and loading a hex file can be summarized in the following steps:

1. Start Terminal Configuration Manager
2. Create a new script or modify an existing one
3. Build the hex file
4. Load the hex file to the terminal.

Starting Terminal Configuration Manager

To start TCM on the host computer, select *Start - Programs - Symbol - TCM*. The following window appears, displaying two sub-windows. One contains a newly created script and the other contains a file explorer view used for selecting files to be placed in the script.

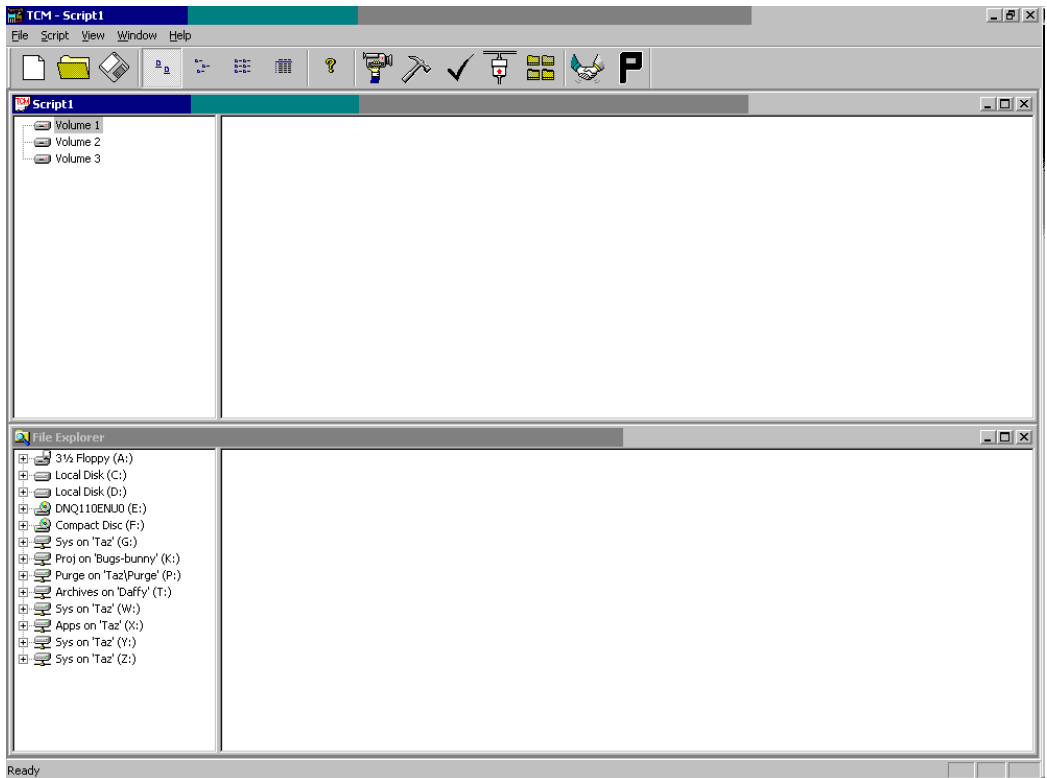



Figure 12-1. TCM Window

Table 12-1 lists the main components for the TCM main window.

Table 12-1. TCM Window Components

Component	Icon	Description
Script Window		Displays the files to be used in the creation of the partition(s).

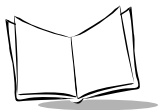


Table 12-1. TCM Window Components (continued)

















Component	Icon	Description
File Explorer		Used to select the files to be added to the script.
Create		Create a new script file.
Open		Open an existing script file.
Save		Save the current script file.
Large Icon		View the current script items as large icons.
Small Icon		View the current script items as small icons.
List		View the current script items as a list.
Details		View the current script items with more details.
About		Displays version information for TCM.
Properties		View or change the current script properties.
Build		Build the current script into a set of hex images.
Check		Check the script for errors (files not found).
Send		Download the hex image to the terminal.
Tile		Arrange the sub-windows in a tiled orientation.

Table 12-1. TCM Window Components (continued)

Component	Icon	Description
Preferences		View or change the global TCM options.
Build and Send		Build the current script into a set of hex images and send the hex images to the terminal.

Defining Script Properties

Before a script is created, the script properties must be defined. The properties include the terminal type, the flash type, the number of disks being created and the memory configuration of each disk partition.

To define the script properties:

1. With *TCM* open, click on the *Script Window* to make it the active window.
2. Select *Script - Properties* or click the Properties button. The *SCRIPT PROPERTIES* window displays.

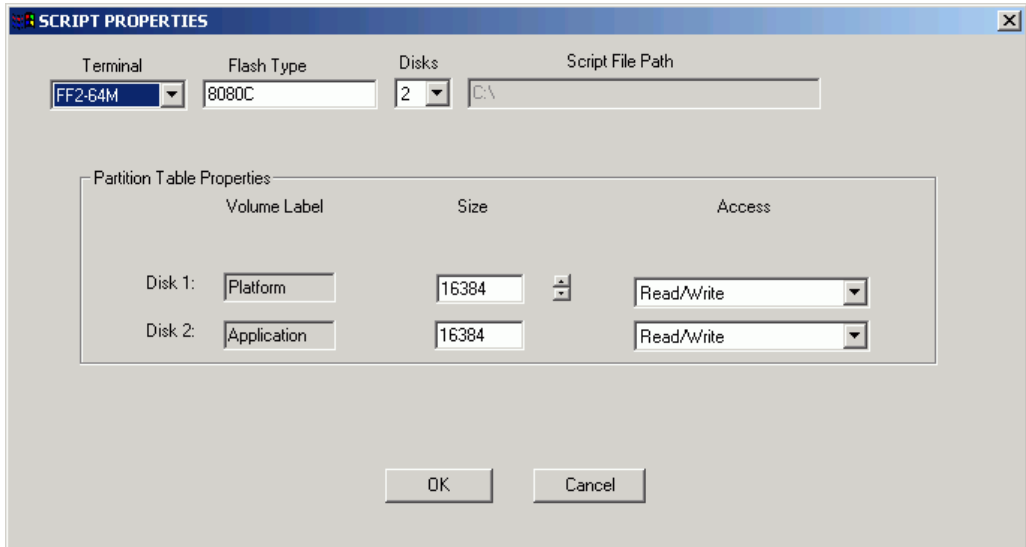
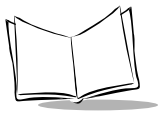


Figure 12-2. Script Properties Window

3. Select FF2-64M from the *Terminal* drop-down list.
4. Use the default flash type.
5. Select the number of disk partitions to create from the *Disks* drop-down list.
6. Select the memory size for each partition from the *Size* list boxes. Note that added space on one disk partition subtracts it from the other partition.
7. Each each partition, select read/write access from the *Access* drop-down lists.
8. The file path displays in the *Script File Path* field.
9. Select a cushion percentage from the *Cushion* drop-down list to specify the percent of flash reserved for cushion. Choosing a higher number reduces disk storage space, but also increases write performance on fragmented disks or disks becoming full. To speed the writing process, select as high a number as storage needs permit (up to 25%).
10. Click **OK** to complete the settings.

Creating a Hex Image Script

TCM operations are controlled by script files. Script files are created using the following steps:

1. Open a new or existing script file
2. Copy components to the script window
3. Save the script file.

Open a New or Existing Script File

A script file can be created from scratch or based on an existing script file. Click the New button to create a new script or click the Open button to open an existing script (for example, a script provided in the DCP). If an existing script is opened and changes are made, saving the changes overwrites the original script. To use an original or Symbol-supplied standard script as a base and save the changes in a new script, use the Save As function which allows saving to a different filename.

Copy Components to the Script Window

Script contents are managed using standard file operations such as New Folder, Delete and Rename. Items can be added to the script by selecting files and folders in the *File Explorer* window and dragging them to the *Script* window. The *File Explorer* window supports standard windows; multiple file selection using **SHIFT** and **CTRL** and mouse clicking.

Save the Script File

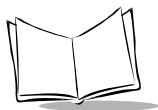
Modifications to a script file can be saved using the Save or the Save As function. Saving changes to an existing script, writes over the original script. To use a Symbol-supplied standard script as a base and save the changes in a new script, use the Save As function.

Building the Image

Once the script has been created, the hex image defined by the script can be built.

As part of the build, TCM performs a check on the script which verifies that all files referenced in the script exist. This check is important for previously created scripts to ensure that files referenced in the script are still in the designated locations.

Scripts are built using the following steps:



1. Click the Build button. The *Configure Build* window appears.

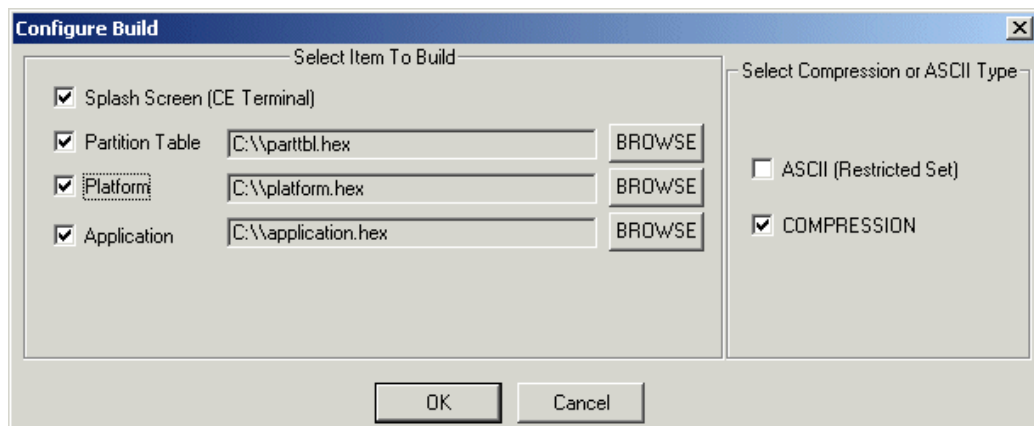


Figure 12-3. Configure Build Window

2. Select the partitions to build using the check boxes to the left of each partition name.
3. Select the filename and location for each partition file using the **BROWSE** button.
4. Select Compression for the hex image, which reduces the size and speeds up the download.
5. Click **OK** and follow the on-screen instructions:

If one of the partitions being built is the Splash Screen partition, the *Splash Screen Creation Dialog* window appears prompting you for both the source Bitmap file, as well as the destination HEX file.

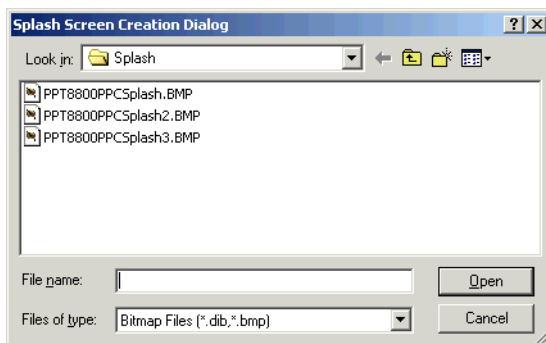


Figure 12-4. Splash Screen Creation Dialog Window

6. A check will be performed and if there are no errors, the partition hex files are created.

If the build fails, the hex files are not be created and TCM displays an error message. Two of the most common reasons for a build failure are:

- Files defined in the script can not be found. This error can occur when the files referenced by the script are no longer stored on the host computer or the folders where they are stored were renamed.
- The total amount of flash memory space required by the script exceeds the image size. To correct this, reduce the number of files in the partition or increase the size of the partition. See [Defining Script Properties](#) on page 12-5 for more information on setting the image size appropriately.

Sending the Hex File

Once the hex file is built, it can be downloaded to the terminal.

1. Connect the Serial Charging Cable or the Single-Slot Cradle to the development computer.

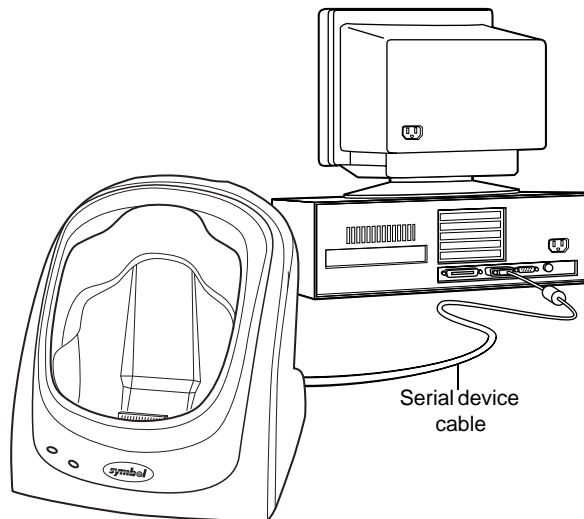
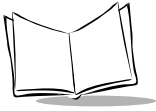


Figure 12-5. Cradle Connection to Development Computer



2. Connect the power supply to the Serial Charging Cable or the cradle and the AC line cord to the power supply and the AC outlet.
3. Perform a hard reset of the terminal, see [Performing a Hard Reset](#) on page 2-36.
4. Replace the battery cover.
5. On the Standard 6-key keypad, simultaneously press and hold the APP 1 and the APP 4 keys then press and release the Power button.
6. On the 15-key keypad, simultaneously press and hold the 1 and 4 keys then press and release the Power button.
7. Continue to hold down the keys until the IPL screen appears.

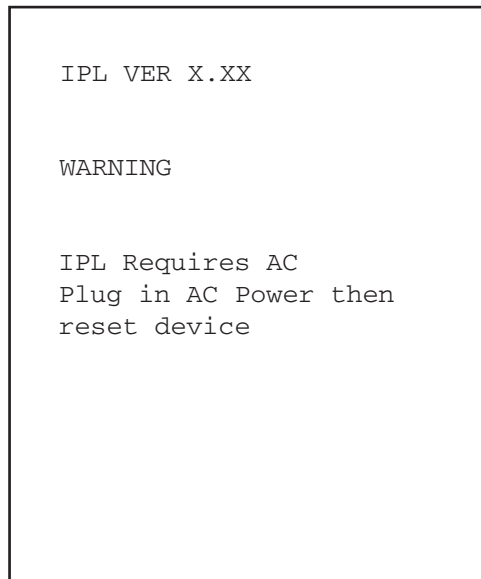


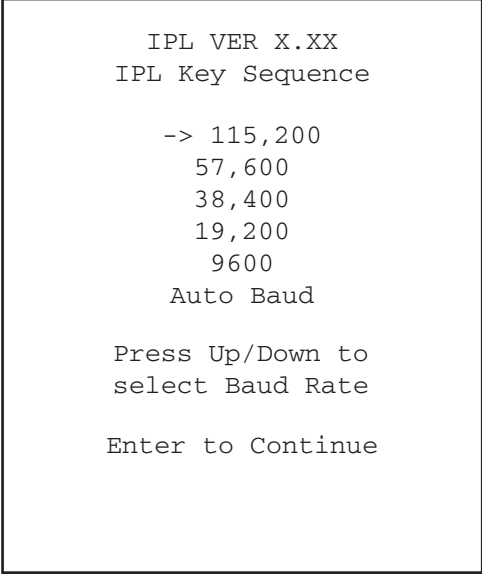
Figure 12-6. IPL AC Power Warning Screen

8. Place the terminal into the cradle or connect the Serial Charging Cable to the terminal.

Caution

Do not remove power from the terminal while in IPL mode. If the battery fully depletes during OS upgrade, serious damage to the terminal can occur.

9. IPL displays the Baud Rate screen which lists the available baud rates for the serial connection.

A screenshot of a terminal window showing the IPL Baud Rate screen. The text is centered and reads: "IPL VER X.XX", "IPL Key Sequence", "-> 115,200", "57,600", "38,400", "19,200", "9600", "Auto Baud", "Press Up/Down to", "select Baud Rate", and "Enter to Continue".

```
IPL VER X.XX
IPL Key Sequence

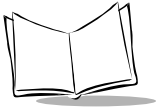
-> 115,200
  57,600
  38,400
  19,200
   9600
Auto Baud

Press Up/Down to
select Baud Rate

Enter to Continue
```

Figure 12-7. Baud Rate Screen

10. Use the up and down keys to select the appropriate baud rate, then press the Enter key or wait 10 seconds for the 115,200 default baud rate.



11. The IPL Main Menu screen lists the partitions and/or applications that can be downloaded.

```
IPL VER X.XX
IPL Key Sequence

Windows CE
Platform
Application
Splash Screen
IPL
Partition Table
Auto Select

Press Up/Down to
select partition

Press Enter to
begin download
```

Figure 12-8. IPL Main Menu Screen

- Use the up and down keys to select *Auto Select*, then press the Enter key. *Auto Select* is the default, and is selected if no other selection is made within three seconds.

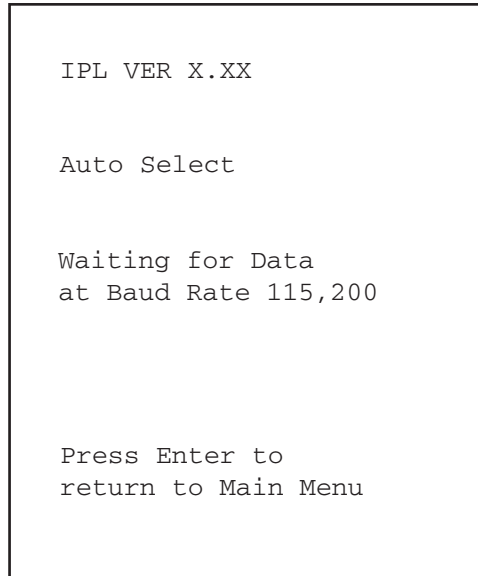
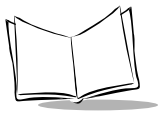


Figure 12-9. Waiting for Data

When downloading more than one hex file, it is recommended that they be downloaded in the following order:

- Partition Table
- Splash Screen
- Application partition
- Platform partition
- Operating system
- IPL.

12. On the development PC:



13. Open the *ActiveSync Connection Settings* window and ensure that the *Allow serial cable or infrared connection to this COM port* checkbox is disabled.

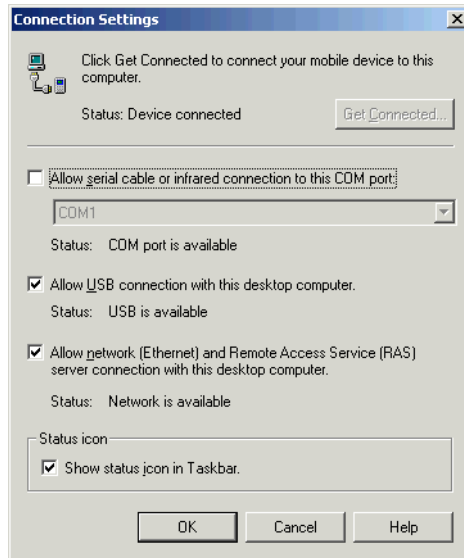


Figure 12-10. ActiveSync Connection Settings Window

14. In TCM, press the *Load* button on the TCM toolbar. The *Load Terminal Dialog* window appears.

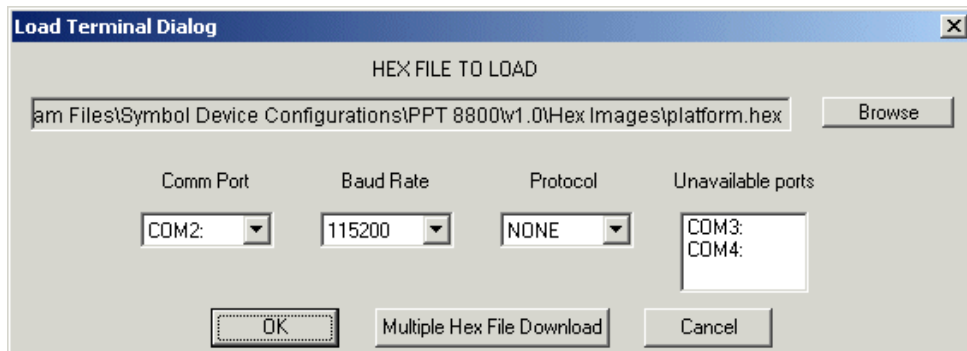
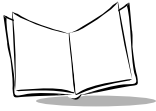


Figure 12-11. Load Terminal Dialog Window

15. If the correct hex file is not displayed in the *HEX FILE TO LOAD* field, click **Browse** and navigate to the correct hex file to be downloaded.

When downloading more than one hex file, it is recommended that they be downloaded in the following order:

- Partition Table
 - Splash Screen
 - Application partition
 - Platform partition
 - Operating system
 - IPL.
16. From the *Comm Port* drop-down list, select the COM port being used. Ports already in use display in the *Unavailable ports* field.
 17. From the *Baud Rate* drop-down list, select the appropriate baud rate. Your options are 2400, 4800, 9600, 19200, 38400, 57600, 115200.
 18. From the *Protocol* drop-down list, select *NONE*.
 19. Insert the terminal in a cradle, or connect it to a development computer with a serial cable.
 20. Click **OK** to load the file.



21. As soon as the first character of data is received, IPL displays the Receiving Data screen.

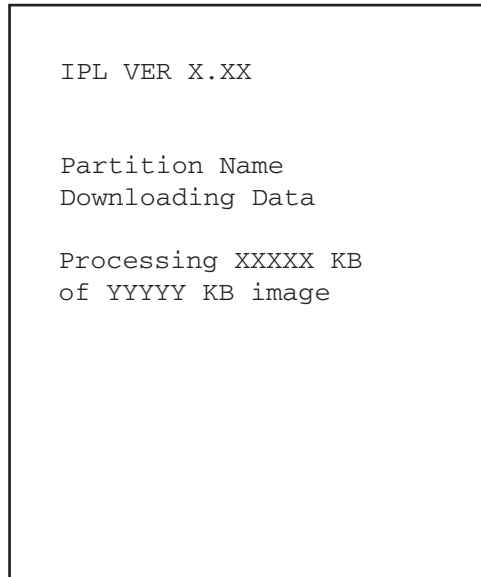
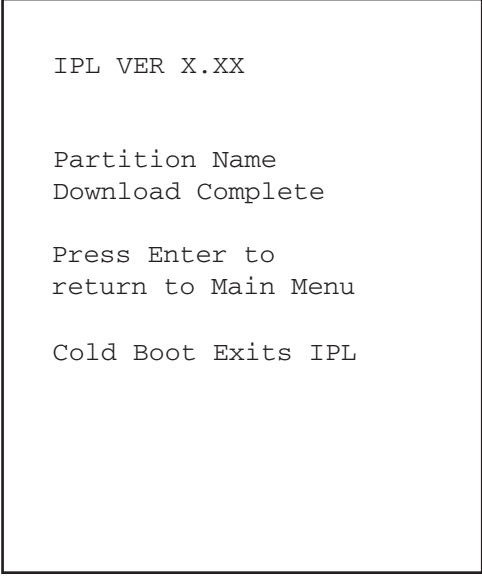


Figure 12-12. Receiving Data Screen

Note: *If the partition being downloaded was set to first erase the flash, the message “Pre-Erasing Flash” first appears before downloading begins.*

This screen indicates that the area selected in the Main Menu is currently downloading and displays until an entire image is received, or until an error is detected. As more data is received, the Receiving Data screen is updated to reflect the current status.

22. When the entire image is received, IPL displays the *Download Complete* screen to indicate that the download is complete.



```
IPL VER X.XX

Partition Name
Download Complete

Press Enter to
return to Main Menu

Cold Boot Exits IPL
```

Figure 12-13. Download Complete Screen

23. Press the Enter key to return to the Main Menu screen.
24. Repeat for each hex file.
25. Hard reset the terminal (see [Performing a Hard Reset](#) on page 2-36) when all partitions are downloaded successfully.
26. On the development computer, select *File - Exit* to exit TCM.



Error Messages

IPL Error Detection

While receiving data, IPL performs many checks on the data to ensure that the data is received correctly. If an error is detected, IPL immediately aborts the download, and reports the error on the terminal.

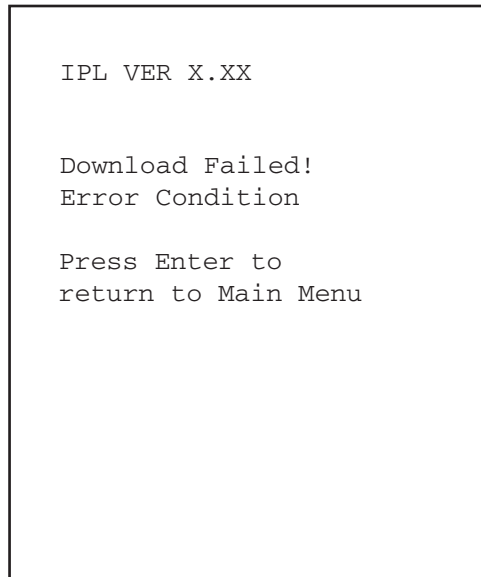


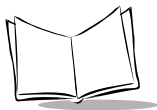
Figure 12-14. IPL Error Message

This screen displays until you press the Enter key. Once the screen is acknowledged, IPL returns to the Main Menu screen to wait for a new selection.

The cause of the error displays under the *Download Failed!* indication. The errors that can be reported, and the probable cause of the error, are described in [Table 12-2](#).

Table 12-2. IPL Error Messages

Error	Description
Invalid Image	This error occurs if another record is received before the Header Record. Ensure the Header Record is the first record downloaded.
Partition Not Defined	The destination code is a part of the Header record and is used as an index into the partition table. The partition table entry located at this index contains partition information for the data downloaded. If the Auto Select option is selected, a check is made to ensure that valid partition information exists in the partition table at this index. The check verifies that the Area Name and Sector Size are both non-zero. If not, this error occurs.
Wrong Partition	If a specific partition is selected from the partition list, and the destination code of the Header record downloaded does not match the index of that partition, this error occurs.
Image Too Big	The size of the image is also part of the Header record. If the data to be written exceeds the size of the partition as indicated in the partition table, this error occurs.
Incorrect Byte Count	Image data is processed until the End Of File (EOF - Record Type 01) record is received. This error occurs if IPL detects that the number of bytes received does not equal the number of bytes sent.
Unable to Verify Partition Data	If the Receive and Verify bit is set for that partition, the data (the Flash sector erased and the data written to the Flash part) is verified. If this data can not be verified, this error occurs.
Transmission Errors	<p>The following error messages may appear if an error occurs during transmission:</p> <ul style="list-style-type: none"> • "Checksum Error" occurs if an invalid checksum is detected in the record. • "Invalid Record" occurs if a record is not defined in the Symbol Hex File Format. • "Connection Lost" occurs if one of the handshaking lines is de-asserted during download. • "Address Out of Sequence" occurs if the address of the data received is not sequential.



TCM Error Messages

TCM validates the cells in your partition table when you press the Enter button. Cells highlighted in red contain an error. Partition loading is disabled until all errors are corrected. The errors that TCM may encounter and possible solutions are described in [Table 12-3](#).

Table 12-3. TCM Error Messages

Error	Description/Solution
Error - Partition Size	The size of a partition must be an integral multiple of the FFSSectorSizeInBytes specified by the .ini file. When the user enters a partition size, TCM rounds up to the next highest integral multiple of the sector size and displays this value in the partition table grid. This error check is made upon value entry, independent of the Execute button.
Error - Image Larger than Partition	If the required size of the binary image file is larger than the associated partition size, the Partition Size cell in the partition grid turns red to highlight the error. The Required Size cell indicates the actual size required.
Error - Total size of all FFS Partition	If the total memory allocated to the 3 FFS partitions is greater than the total Flash Memory on the terminal, the Used FFS Memory display box turns red. Decrease the size of one or more of the partitions, then recheck the configuration using the Execute button.
Error - Source/ Destination Path Verification	If the directory paths specified by the Source and Destination cells do not exist, the cell containing the non-existent path turns red to highlight the error.

For more information on FFS Partitions and Non-FFS Partitions, see [Flash Storage](#) on page 12-22.

Creating and Loading a Splash Screen

To generate a custom splash screen, use a bitmap editor.

1. Create a color bitmap with dimensions of BX x BY where:
 - BX is less than or equal to 240 pixels
 - BY is less than or equal to 320 pixels

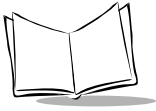
Note: *For best quality use a relatively high resolution color image (256 color). Lower resolution images also work.*

2. Save the file as a 256 color bitmap.
3. Use TCM to convert the bitmap image file to a Hex file (see [Building the Image](#) on page 12-7).

Loading the Splash Screen via TCM

To load the bitmap:

1. Click **TCM.exe** in the TCM directory.
2. Connect the terminal to the host computer and invoke IPL to prepare the terminal to receive the splash screen download.
3. In TCM, select File - *Load Terminal*.
4. Select your splash screen Hex file to begin downloading to the terminal.
5. Close TCM.



Flash Storage

Programs pre-installed on your terminal are stored in read-only memory (ROM). You cannot remove, modify, or accidentally lose this software. You may add programs and data files to random access memory (RAM).

In addition to the RAM-based storage standard on Windows CE terminals, the terminal is also equipped with a non-volatile Flash-based storage area which can store data (partitions) that can not be corrupted by a hard reset. This Flash area is divided into two categories: Flash File System (FFS) Partitions and Non-FFS Partitions.

FFS Partitions

The terminal includes two FFS partitions. These partitions appear to the terminal as a hard drive that the OS file system can write files to and read files from. Data is retained even if power is removed.

The two FFS partitions appear as two separate folders in the Windows CE file system and are as follows:

- **Platform:** The Platform FFS partition contains Symbol-supplied programs and Dynamic Link Libraries (DLLs). This FFS is configured to include DLLs that control system operation. Since these drivers are required for basic terminal operation, only experienced users should modify the content of this partition.
- **Application:** The Application FFS partition is used to store application programs needed to operate the terminal.

Working with FFS Partitions

Because the FFS partitions appear as folders under the Windows CE file system, they can be written to and read like any other folder. For example, an application program can write data to a file located in the Application folder just as it would to the Windows folder. However, the file in the Application folder is in non-volatile storage and is not lost on a hard reset (e.g., when power is removed for a long period of time).

Standard tools such as ActiveSync can be used to copy files to and from the FFS partitions. They appear as the "Application," and "Platform" folders to the ActiveSync explorer. This is useful when installing applications on the terminal. Applications stored in the Application folder are retained even when the terminal is hard reseted, just as the PPT 8800 Demo program is retained in memory.

Windows CE expects certain files to be in the Windows folder, residing in volatile storage. Windows CE maintains the System Registry in volatile storage. There are two device drivers included in the Windows CE image to assist developers in configuring the terminal following a hard reset: **RegMerge** and **CopyFile**.

RegMerge.dll

RegMerge.dll is a built-in driver that allows registry edits to be made to the Windows CE Registry. Regmerge.dll runs very early in the boot process and looks for registry files (.reg files) in certain Flash File System folders during a hard reset. It then merges the registry changes that are in these files into the system registry located in RAM.

Since the registry is re-created on every hard reset from the default ROM image, the RegMerge driver is necessary to make registry modifications persistent over hard resets.

RegMerge is configured to look in three specific folders for .reg files in the following order:

- \Platform

- \Application

Regmerge continues to look for .reg files in these folders until all folders are checked. This allows folders later in the list to override folders earlier in the list. This way, it is possible to override Registry changes made by the Platforms partitions folders. Take care when using Regmerge to make Registry changes. The SMDK contains examples of .reg files.

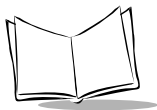
Note: *Regmerge only merges the .reg files on hard resets. The merge process is skipped during a soft reset.*

Typically, you should not need to make modifications to registry values for drivers loaded before RegMerge. However, sometimes during software development, you may need to modify these values. Since these early loading drivers read these keys before RegMerge gets a chance to change them, you must soft reset the terminal after a hard reset. The soft reset does not re-initialize the registry, and the early loading driver reads the new registry values.

Do not use Regmerge to modify built-in driver registry values, or merge the same Registry value to two files in the same folder, as the results are undefined.

CopyFile

CopyFile copies files from one folder to another on a hard reset. Files can be copied from a non-volatile partition (Application or Platform) to the Windows or other volatile partition



during a hard reset. During a hard reset **CopyFile** looks for files with a .CPY extension on the FFS partition. These files are text files containing the source and destination for the desired files to be copied separated by ">".

Non-FFS Partitions

Non-FFS Partitions include additional software and data pre-loaded on your terminal that can be upgraded. Unlike FFS Partitions, these partitions are not visible when the operating system is running. They also contain system information. Non-FFS partitions include the following:

- **Windows CE:** The complete Windows CE operating system is stored on Flash devices. If necessary, the entire OS image may be downloaded to the terminal using files provided by Symbol. The current OS partition on the terminal is included as part of the TCM installation package. Any upgrades must be obtained from Symbol. This partition is mandatory for the terminal.
- **Splash Screen:** a bitmap smaller than 16 Kb, displayed as the terminal hard resets. You may download a customized screen to display (see [Configuring the Terminal](#) on page 12-1).
- **IPL (Initial Program Loader):** This program interfaces with the host computer and allows you to download via cradle or serial cable any or all of the partitions listed above, as well as updated versions of IPL. Use caution downloading updated IPL versions; incorrect downloading of an IPL causes permanent damage to your terminal. IPL is mandatory for the terminal.
- **Partition Table:** Identifies where each partition is loaded in the terminal.

Assigning User-Written Applications to Buttons

Use **RegMerge** to modify the registry during a hard reset to assign user-written applications to the application buttons. These buttons remain assigned after a hard reset.

Note: *Although located in the Flash File System, we recommend copying user applications to the Windows directory (using CopyFile) and running them from there. See the WinCE Help file on the SMDK for more information.*

Adding Programs

Install the appropriate software on your host computer before installing it on your terminal.

1. Select *Start - Settings - About* icon - *Version* tab. Note the information in *Processor* field.
2. Download the program to your host computer (or insert the CD or disk that contains the program into your host computer). You may see a single *.xip file, *.exe file, a *.zip file, or a Setup.exe file.
3. Read any installation instructions, Read Me files, or documentation that comes with the program. Many programs provide special installation instructions.
4. Connect your terminal to the host computer.
5. Double-click the executable file on the host computer.

If the file is an installer, the installation wizard begins. Follow the directions on the window. Once the software is installed on your host computer, the installer transfers the software to your terminal.

If the file is not an installer, an error message states that the program is valid but is designed for a different type of computer. Move this file to your terminal. If you cannot find installation instructions for the program in the Read Me file or documentation, use ActiveSync Explore to copy the program file to the Program Files folder on your terminal. For more information on copying files using ActiveSync, see ActiveSync Help.

6. When installation is complete, tap *Start - Programs* on the terminal, then tap the program icon.



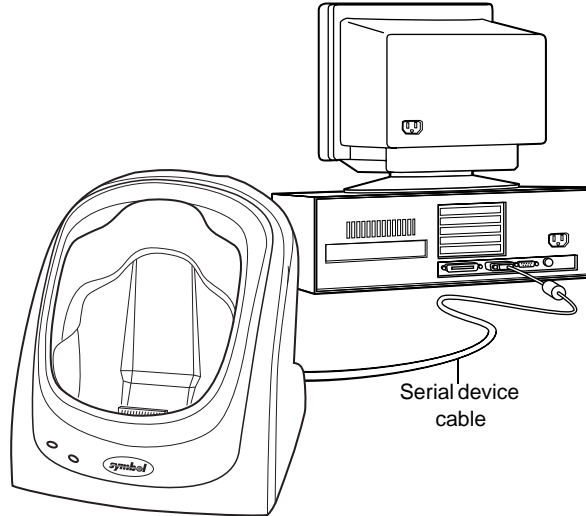
Adding a Program from the Internet

1. Select *Start - Settings - About* icon - *Version* tab. Note the information in *Processor* field.
2. Download the program to your terminal from the Internet using Pocket Internet Explorer. You may see a single *.xip, *.exe, *.zip file, or a Setup.exe file.
3. Read any installation instructions, Read Me files, or documentation that comes with the program. Many programs provide special installation instructions.
4. Tap the file, such as a *.xip or *.exe file, to launch the installation wizard. Follow the directions on the window.

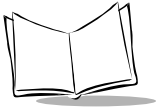
Update the ROM Image Using IPL

To update the ROM Image on the terminal using IPL:

1. Connect the Serial Charging Cable or the CRD8800 Single-Slot Cradle to the host computer.



2. Connect the power supply to the Serial Charging Cable or the cradle and the AC line cord to the power supply and the AC outlet.
3. Perform a hard reset, see [Performing a Hard Reset](#) on page 2-36.
4. Replace the battery cover.
5. On the standard 6-key keypad, simultaneously press and hold the APP 1 and APP 4 keys and then press and release the Power button. Continue to hold the APP 1 and APP 4 keys the IPL screen appears.



6. On the 15-key keypad, simultaneously press and hold the 1 and 4 keys then press and release the Power button. Continue to hold the 1 and 4 keys until the IPL screen appears.

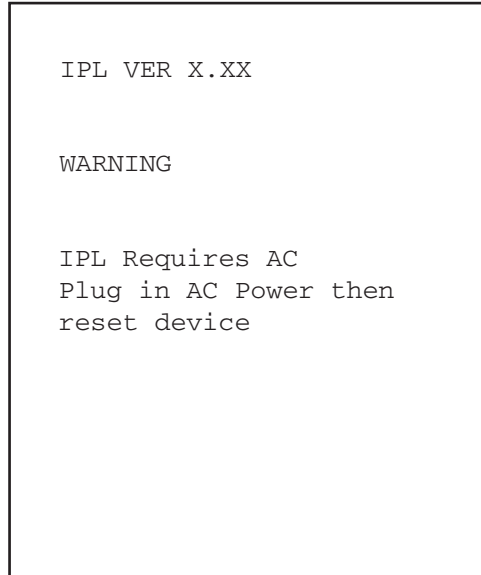


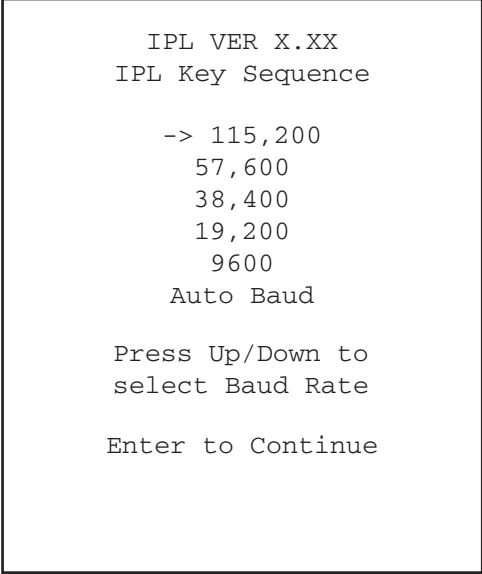
Figure 12-15. IPL AC Power Warning Screen

7. Place the terminal into the cradle or connect the Serial Charging Cable to the terminal.

Caution

Do not remove power from the terminal while in IPL mode. If the battery fully depletes during OS upgrade, serious damage to the terminal can occur.

8. The *Baud Rate Selection* screen appears.

A screenshot of a terminal window showing the IPL Baud Rate Selection screen. The text is centered and reads: IPL VER X.XX, IPL Key Sequence, -> 115,200, 57,600, 38,400, 19,200, 9600, Auto Baud, Press Up/Down to select Baud Rate, and Enter to Continue.

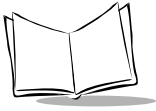
```
IPL VER X.XX
IPL Key Sequence

-> 115,200
   57,600
   38,400
   19,200
   9600
Auto Baud

Press Up/Down to
select Baud Rate

Enter to Continue
```

Figure 12-16. IPL Baud Rate Screen



9. Select a baud rate of 115,200 then press the Enter key or wait till it times out. The *IPL Download* screen displays.

```
IPL VER X.XX
IPL Key Sequence

Windows CE
Platform
Application
Splash Screen
IPL
Partition Table
Auto Select

Press Up/Down to
select partition

Press Enter to
begin download
```

Figure 12-17. IPL Download Screen

10. Select *Auto Select*.
11. Press the Enter key.
12. On the host computer, launch TCM.

13. Select *File - Load Terminal*. The *Load Terminal Dialog* window appears.

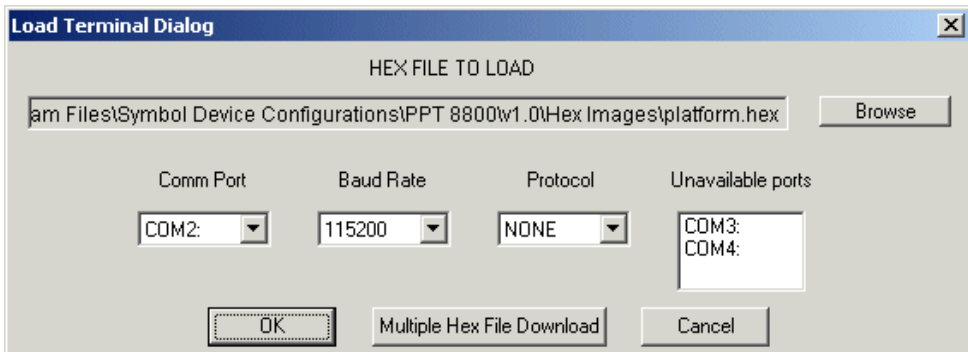


Figure 12-18. Load Terminal Dialog Window

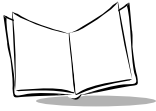
14. Select the COMM port to be the comm port on the host computer from the *Comm Port* drop-down list.
15. Select *115,200* from the *Baud Rate* drop-down list.
16. Select *None* from the *Protocol* drop-down list.
17. Click **Multiple Hex File Download**. The *Multiple File Transfer* window appears. Change the directory to the subdirectory where the hex images are located (C:\Program Files\Symbol Device Configuration Packages\PPT8800\v1.0\Flash Folders\Hex Images.)
The specific files that you select depends upon the model number of the terminal you are downloading to.
18. Click **Open** and start the download. The terminal indicates it is pre-erasing the flash for each file separately and displays a progress status for the download.

Note: *The host computer progress status screen may be completed but the terminal might still be updating.*

19. TCM also displays a status update for the download.

Caution

Do not remove the terminal from the cradle until the TCM progress dialog box has disappeared and the terminal indicates it has downloaded successfully.



20. When completed the *Download Complete* screen appears:

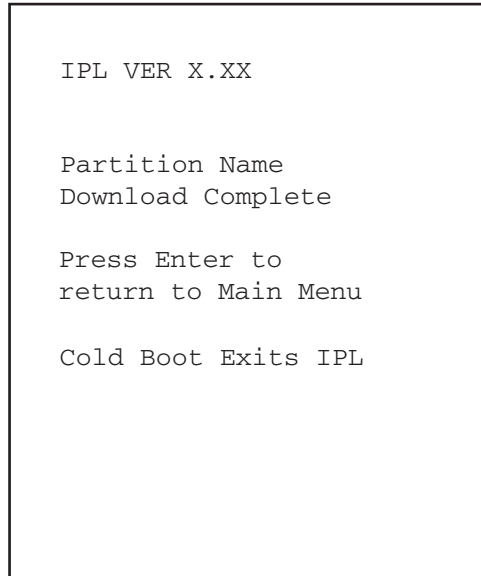


Figure 12-19. Download Complete Screen

21. Perform a hard reset, see [Performing a Hard Reset](#) on page 2-36.

22. Tap *Start - Settings - System tab - Symbol Settings* icon - *System* tab to view the new system information.

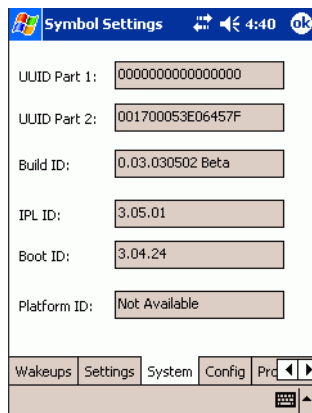
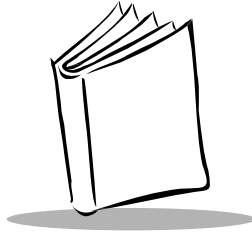


Figure 12-20. Symbol Settings Window - System Tab

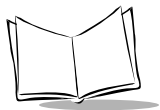


Chapter 13

Maintenance and Troubleshooting

Chapter Contents

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Safely Maintaining the PPT 8800.	13-3
Terminal and Cradle Connector Cleaning Guidelines	13-4
Required Materials	13-4
Cleaning the Terminal Connector.....	13-4
Cleaning the Cradle Connector	13-7
Troubleshooting	13-10



Introduction

This chapter includes instructions on cleaning and storing your terminal, and provides troubleshooting solutions for potential problems during terminal operating.

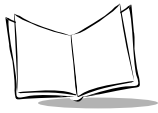
Safely Maintaining the PPT 8800

For trouble-free service, observe the following tips when using your terminal:

- Take care not to scratch the screen of your terminal. When working with your terminal, use the supplied stylus or plastic-tipped pens intended for use with a touch-sensitive screen. Never use an actual pen or pencil or other sharp object on the surface of the terminal screen.
- Although your terminal is water and dust resistant, do not expose it to rain or moisture for an extended period of time. In general, treat your terminal as you would a pocket calculator or other small electronic instrument.
- The touch-sensitive screen of your terminal contains glass. Take care not to drop your terminal or subject it to strong impact.
- Protect your terminal from temperature extremes. Do not leave it on the dashboard of a car on a hot day, and keep it away from heat sources.
- Do not store or use your terminal in any location that is extremely dusty, damp or wet.
- Use a soft lens cloth to clean your terminal. If the surface of the terminal screen becomes soiled, clean it with a soft cloth moistened with a diluted window-cleaning solution. (See [Terminal and Cradle Connector Cleaning Guidelines](#) on page 13-4 for additional information about cleaning the terminal and cradle connectors.)

WARNING

Avoid exposing the PPT 8800, including its cradle, to contact with hot oil or other flammable liquids. If such exposure occurs, immediately clean the terminal (or cradle) in accordance with the cleaning guidelines at the end of this guide.



Terminal and Cradle Connector Cleaning Guidelines

This section explains the proper way to clean the connector area of the PPT 8800 terminal and cradle.

Required Materials

Use the following cleaning materials:

- Cotton tipped applicators (Puritan)
- Isopropyl alcohol
- Can of compressed air with a tube/nozzle (Micro Blast)
- Lint free cloth.

WARNING

Read the warning label on compressed air and alcohol products before using and ALWAYS wear eye protection.

Cleaning the Terminal Connector

To clean the terminal connector, follow the steps below.

1. Remove the main battery from the terminal.
2. Replace the battery cover (see [Installing the Battery](#) on page 1-8).
3. Dip the cotton portion of the cotton tipped applicator in isopropyl alcohol.

4. Insert the cotton portion of the cotton tipped applicator inside the connector on the bottom of the terminal as shown in [Figure 13-1](#). (Ensure the tip of the cotton touches the back of the connector.)

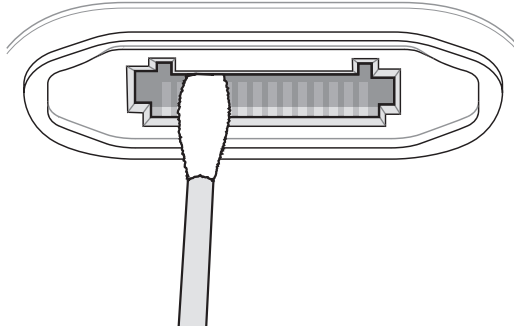


Figure 13-1. Inserting the Cotton Tipped Applicator

5. Twist the cotton tipped applicator and slowly move it back-and-forth from one side of the connector to the other.

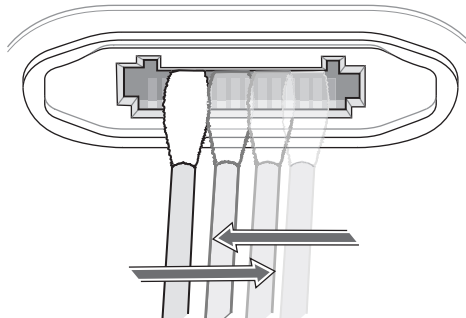
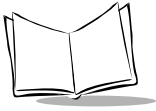


Figure 13-2. Cleaning the Connector

6. Repeat step 5 at least three times.
7. Remove the cotton tipped applicator from the connector.

Note: *The cotton tipped applicator dipped in alcohol can also be used to scrub off any grease and dirt near the connector area.*

8. Using a dry cotton tipped applicator, repeat steps 3-5.



9. Spray compressed air in the connector area by pointing the tube/nozzle approximately 1/2 inch away from the surface.

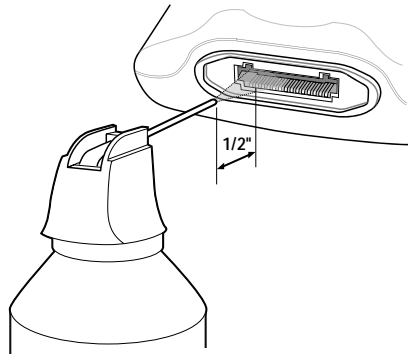


Figure 13-3. Air Spray Terminal Connector

WARNING

Do not point the tube/nozzle at yourself and others. Ensure the tube or nozzle is away from your face.

10. Inspect the area for any grease or dirt.
11. Repeat steps 3-9 as required.
12. Ensure there is no lint left by the cotton tipped applicator.
13. Remove lint, if found.

Cleaning the Cradle Connector

To clean the cradle connector, follow the steps below.

1. Remove the power to the cradle by unplugging the DC cable.
2. Position the cradle as shown in [Figure 13-4](#).

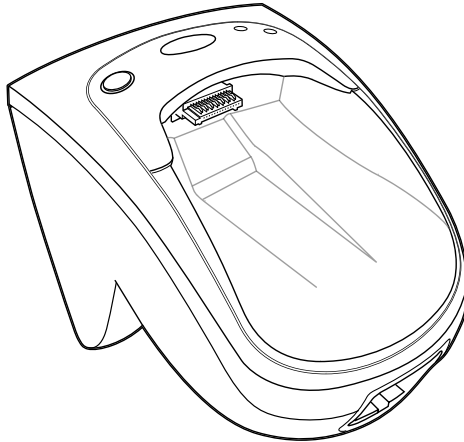


Figure 13-4. Preparing the Cradle

3. Dip the cotton portion of the cotton tipped applicator in isopropyl alcohol.
4. Scrub the cotton portion of the cotton tipped applicator along the pins as shown in [Figure 13-5](#), slowly moving back-and-forth from one side of the connector to the other.

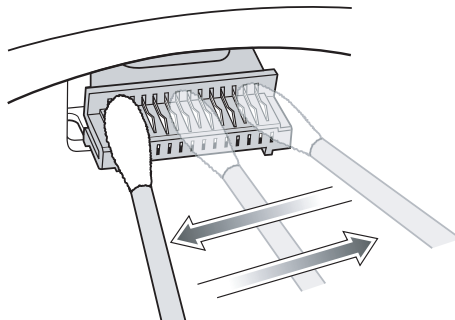


Figure 13-5. Cleaning the Cradle Connector Pins



5. All sides of the connector should also be scrubbed with the cotton tipped applicator, illustrated by the arrows in [Figure 13-6](#).

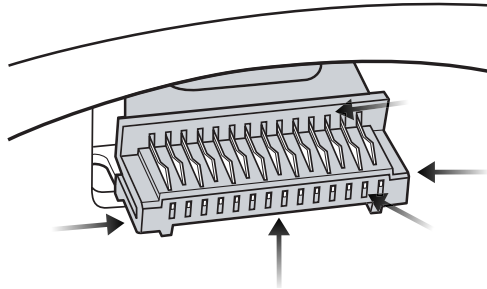


Figure 13-6. Cleaning the Cradle Connector

6. Spray compressed air in the connector area by pointing the tube/nozzle approximately 1/2 inch away from the surface.

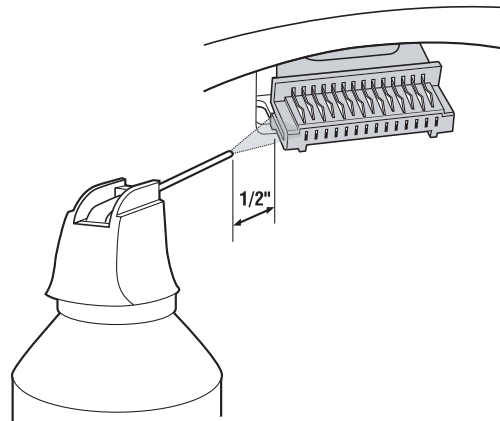


Figure 13-7. Air Spray Cradle Connector

WARNING

Do not point the tube/nozzle at yourself and others. Ensure the tube or nozzle is away from your face.

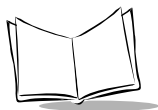
7. Ensure there is no lint left by the cotton tipped applicator.
8. Remove lint, if found.

9. If grease and other dirt is found on other areas of the cradle, use a lint free cloth and alcohol to remove.
10. Allow at least 10-30 minutes (depending on ambient temperature/humidity) for the alcohol to air dry before apply power to cradle.

Note: *If temperature is low and humidity is high, longer drying time is needed. Warm and dry requires less drying time. DO NOT PLACE PRODUCTS IN AN OVEN OR UNDER HEAT LAMPS!*

WARNING

Avoid exposing this product to contact with hot oil or other flammable liquids. If such exposure occurs, unplug the unit and clean the product immediately in accordance with these guidelines.



Troubleshooting

Table 13-1. Troubleshooting Your Terminal

Problem	Cause	Solution
Terminal does not turn on.	Lithium-ion battery not charged.	Charge or replace the lithium-ion battery in the terminal.
	Lithium-ion battery not installed properly.	Ensure battery is installed properly. See Installing the Battery on page 1-8.
	System crash.	Perform a soft reset. If the terminal still does not turn on, perform a hard reset. See Resetting the Terminal on page 2-36.
Rechargeable lithium-ion battery did not charge.	Battery failed.	Replace battery. If your terminal still does not operate, try a soft reset, then a hard reset. See Resetting the Terminal on page 2-36.
	Terminal removed from cradle while battery was charging.	Insert terminal in cradle and begin charging. The standard battery requires approximately 2 1/2 hours to recharge fully and the optional larger capacity battery charges in approximately five hours.
Cannot see characters on display.	Terminal not powered on.	Press the Power button.
Fail to communicate with IrDA printer.	Distance from printer is between 5 inches and 39 inches.	Bring the terminal closer to the printer and attempt communication again.
	Obstruction interfered with communication.	Check the path to ensure no objects were in the way.
	Application is not enabled to run IrDA printing.	Printer support must be included with the application to run IrDA printing on the terminal. See your System Administrator.

Table 13-1. Troubleshooting Your Terminal (continued)

Problem	Cause	Solution
During data communication, no data was transmitted, or transmitted data was incomplete.	Terminal removed from cradle or unplugged from host PC during communication.	Replace the terminal in the cradle, or replace the Synchronization cable, and re-transmit.
	Incorrect cable configuration.	See your System Administrator.
	Communication software was incorrectly installed or configured.	Perform setup. See Chapter 4, Communication for details.
No sound is audible.	Volume setting is low or turned off.	Check the volume slider in the <i>Volume & Sound</i> properties dialog box in the Control Panel to ensure the volume is not turned down.
Terminal turns itself off.	Terminal is inactive.	Your terminal turns off after a period of inactivity. If the terminal is running on battery power, this period can be set from 1 to 5 minutes, in one-minute intervals. If the terminal is running on external power, this period can be set to 1, 2, 5, 10, 15, and 30 minutes. Check the <i>Power</i> dialog box (in the Control Panel), and change the setting if you need a longer delay before the automatic shutoff feature activates.
	Battery is depleted.	Replace the battery.
	Battery cover is removed.	Replace the battery cover.
Tapping the window buttons or icons does not activate the corresponding feature.	LCD screen not aligned correctly.	Re-calibrate the screen. See Screen on page 3-51.
	The system is hung.	Soft reset the system. To perform a soft reset, see Resetting the Terminal on page 2-36.

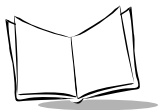


Table 13-1. Troubleshooting Your Terminal (continued)

Problem	Cause	Solution
A message appears stating that your terminal memory is full.	Too many files stored on the terminal.	Delete unused memos and records. You can save these records on your host computer.
	Too many applications installed on the terminal.	If you have installed additional applications on your terminal, remove them to recover memory. Select <i>Start - Settings -Control Panel</i> . Double-tap the <i>Remove Programs</i> icon. Select the unused program and tap Remove .
Beamed data does not transmit.	Terminals too close together or too far apart.	Confirm that the terminals are at least 5 inches and at most 39 inches apart. Also ensure that there is a clear path between the two devices.
	Insufficient room lighting.	Adjust the room lighting or move to a different location.
When receiving beamed data an out of memory message appears.	Not enough free memory available for receiving data.	Your terminal requires at least twice the amount of memory available as the data you are receiving. For example, if you are receiving a 30K application, you must have at least 60K free.

Table 13-1. Troubleshooting Your Terminal (continued)

Problem	Cause	Solution
Your terminal does not accept scan input.	Scanning application is not loaded.	Verify that the unit is loaded with a scanning application. See your System Administrator.
	Unreadable bar code.	Ensure the symbol is not defaced.
	Distance between exit window and bar code is incorrect.	Ensure you are within proper scanning range.
	Terminal is not programmed for the bar code.	Ensure the terminal is programmed to accept the type of bar code you are scanning.
	Terminal is not programmed to generate a beep.	If you are expecting a beep on a good decode and don't hear one, check that the application is set to generate a beep on good decode.
	Battery is low.	If the scanner stops emitting a laser beam when you press the trigger, check your battery level. When the battery is low, the scanner shuts off before the terminal notifies you of the low battery condition. Note: If the scanner is still not reading symbols, contact your distributor or Symbol Technologies.

Note: *If, after performing these checks, the terminal is still not reading symbols, contact your distributor or Symbol Technologies.*

Table 13-2. Troubleshooting Bluetooth Connection

Problem	Cause	Solution
Cannot connect to a device in my folder.	The services for the devices have not been discovered.	In the <i>Bluetooth Devices</i> window, tap the device icon. Select <i>Device - Properties</i> . Tap the <i>Services</i> tab. Tap Update .

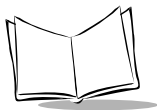
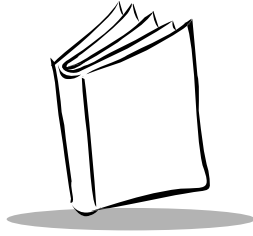


Table 13-2. Troubleshooting Bluetooth Connection (continued)

Problem	Cause	Solution
When using the <i>Get Connected! Wizard</i> to connect to a phone, I get a screen that says <i>Partial Success</i> .	The phone is not in Bondable mode.	Set the phone to Bondable mode. If needed, consult your phone's user documentation for help.
	The passkey is incorrect.	Ensure the same passkey is entered on the phone and the terminal. If using a pre-assigned passkey for the phone, verify that your passkey is accurate.
The terminal cannot find any Bluetooth devices nearby.	Too far from other Bluetooth devices.	Move closer to the other Bluetooth device(s), within a range of 10 meters.
	The Bluetooth device(s) nearby are not turned on.	Turn on the Bluetooth device(s) you wish to find.
	The Bluetooth device(s) are not in discoverable mode.	Set the Bluetooth device(s) to discoverable mode. If needed, refer to the device's user documentation for help.
The terminal keeps powering down to protect memory contents.	The terminal's battery is low.	Recharge the battery.
	The Bluetooth radio has been in Discoverable mode for a long time. This mode requires a lot of battery power and should be turned off whenever not needed.	Tap the <i>Bluetooth</i> icon, then select <i>My Bluetooth Device</i> . Uncheck <i>Discoverable</i> .
When trying to connect a Bluetooth phone and terminal, the phone thinks that I am using a different terminal that I previously paired with the phone.	The phone remembers the name and address of the terminal it last paired with via your Bluetooth radio.	Manually delete the pairing device and name from your phone. Refer to your phone's user documentation for instructions.
Can't make my Ericsson R520 phone discoverable.	You attempted to bond with the phone, and when the phone presented a "pairing query," you entered No. This prevents the phone from being discoverable until it is reset.	Reset the phone by removing its battery.



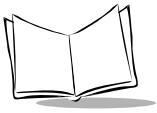
Appendix A

Block Recognizer Characters

Introduction

Using the Block Recognizer, you can write characters directly on your terminal screen with your stylus. These characters are translated into typed text. Use Block Recognizer to enter text, for example, to write a note or to fill in fields in a dialog box.

[Figure A-2](#) provides examples of how to write characters in lowercase. The Block Recognizer input panel is divided into two writing areas. Letters written in the left area



(labeled abc) create lowercase letters. Use the right area (labeled 123) for writing numbers, symbols, special characters, and punctuation.

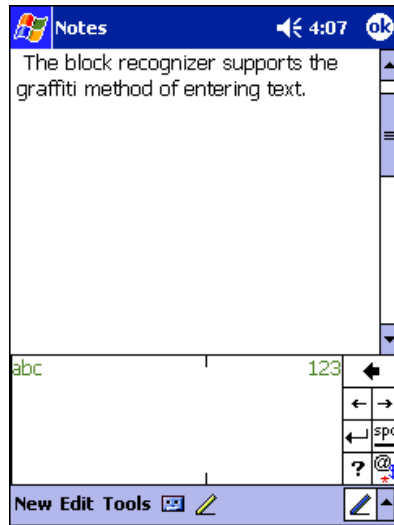


Figure A-1. Using Block Recognizer

The following chart illustrates some of the characters you can write (the dot on each character is the starting point for writing).

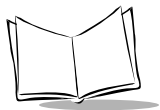
Letter Area					Number/Punctuation Area				
A	a	a			N	n			
B	b	b			O	o	o		
C	c				P	p	p		
D	d	d			Q	q	q		
E	e				R	r	r		
F	f	f			S	s			
G	g	g			T	t	7	7	7
H	h	h			U	u	u		
I	i	i			V	v			
J	j	j			W	w	w		
K	k	k	k	α	X	x	x		
L	l	l	2		Y	y	y		
M	m				Z	z			
					0	0			
					1	1			
					2	2	2		
					3	3			
					4	4	4	4	L
					5	5	5	5	
					6	6			
					7	7			
					8	8			
					9	9			
					.	.			
					((
))			
					+	+			
					*	*	x		
					/	/			
					\	\			
					?	?	?		
					!	!			
					@	@			
					&	&			
					‘	‘			
					“	“			
					-	-			

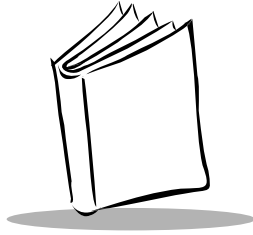
space	←
back space	→

enter	↵
back space	←

Figure A-2. Character Chart

For specific instructions on using Block Recognizer, with Block Recognizer open, tap the question mark next to the writing area.





Appendix B

Demo Program

Introduction

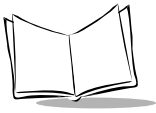
The demo program illustrates how to use some of the terminal's many applications. If the demo program is not already on the terminal, it can be downloaded from the *Symbol Device Configuration Package for PPT 8800*. See [Chapter 12, Configuring the Terminal](#) for instructions on adding programs to your terminal.

The demo program could be loaded in the terminal's *Application* directory in a compressed cab file. To install the demo program from the cab file:

1. Tap *Start - Programs - File Explorer*.
2. Select the *Application* directory.
3. Tap the filename: *ppt8800 demos.cab*.
4. A dialog box appears. Enter "demo" and tap the **OK** button.
5. The demo program installs and appears in the *Start* menu.

The following options are available via the demo program.

- *Notify* - tests the green/amber/yellow LED, vibrator and beeper functionality
- *Scan* - sample scanning application for Visual C/C++
- *Files* - sample file management utility
- *Ctl. Panel* - accesses the Control Panel screen
- *Scan Wedge* - integrates bar code scanning into applications.
- *Print* - sample print utility.
- *About* - provides version number, and other information, for the Demo program



- *Exit* - exits the Demo program.

To launch the Demo program, tap *Start - PPT 8800 Demo*. The *PPT8800 Demo* window appears.

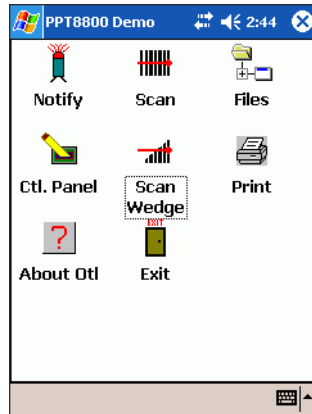


Figure B-1. PPT 8800 Demo Window

Notify

Notify tests the LED, vibrator and beeper functionality of the terminal.

1. Tap the *Notify* button. The *Notify Example* window appears.



Figure B-2. Notify Window

2. Select one of the items from the list.
3. Tap the **On** button. The selected item is activated.
4. Tap the **Off** button.
5. Tap **Exit** to closed the application.

Scan

The Visual C/C++ sample scanning application enables the terminal's scanner, allows the user to change scan parameters, and displays scanned data. To access the Scan demo, tap *Scan* on the *Symbol Launcher window*.

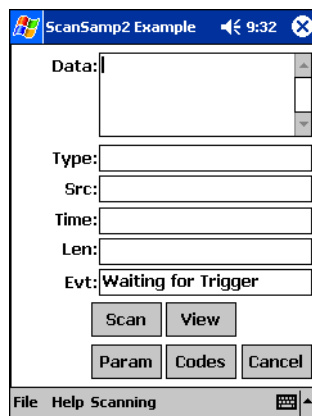
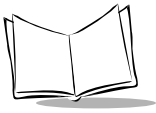


Figure B-3. Scan Sample Screen

Scanning Data Fields

After a bar code is scanned, the following data appears in the screen:

- *Data* displays the data encoded in the scanned bar code.
- *Type* indicates the hex type scanned.
- *SRC* indicates the scanner being used, and the bar code type scanned (e.g., Code 128).
- *Time* displays the time the bar code was scanned.
- *Len* indicates the number of digits in the bar code.
- *Evt.* indicates the status of the application, "Waiting for Trigger" or "Scanning."



Scanning Options

The following options are available in the *Scan* screen:

- *Scan* provides an alternative to the trigger buttons on the terminal.
- *View* displays the bar code content in a separate screen.
- *Params* is used to change scanning parameter options, such as:
 - beep time (length of decode beep)
 - beeper frequency (tone)
 - LED-on time (length of time LED remains on upon decode)
 - Code ID (AIM, Symbol)
 - Wav File (sound of decode beep).
- *Codes* selects the code types the terminal is able to decode, and sets the options for each code type.
- *Cancel* closes the *Scan* screen.

Files

Tap *Files* on the *Symbol Launcher* window for a file browser utility, *InkWiz Example*. It provides similar Windows Explorer-like functionality and allows the user to browse, cut, copy, paste and delete files as well as execute the program.

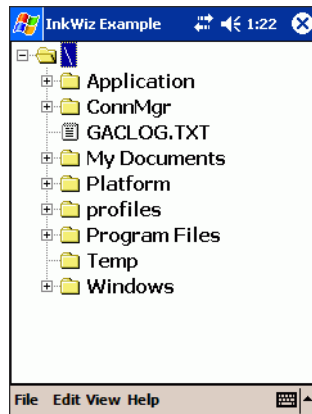


Figure B-4. InkWiz Example Window

Ctl Panel

Tap *Ctl Panel* on the Symbol Launcher window to access the *Control Panel*, where you can specify settings for your terminal.

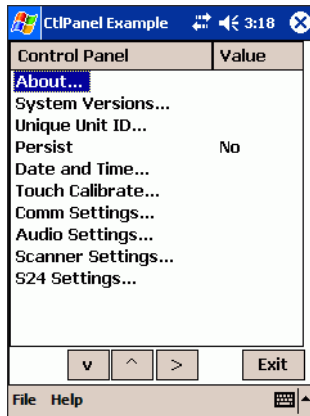


Figure B-5. Control Panel Screen

About

Tap *About* on the *Control Panel* to view the version of the *Control Panel*.

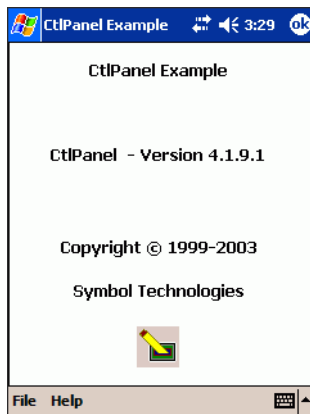
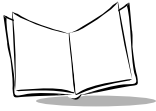


Figure B-6. About Screen



System Versions

Tap *System Versions* to view version information for the applications on your terminal.

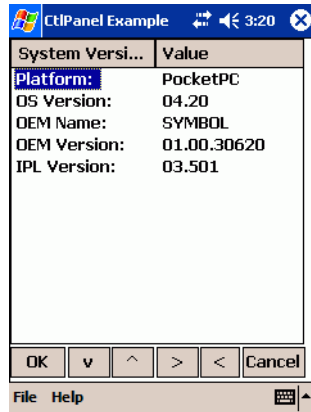


Figure B-7. System Versions Screen

On the *System Versions* window:

- *Platform* indicates the operating system running on the terminal (Pocket PC).
- *OS Version* specifies the version of the operating system.
- *OEM Name* is the OEM name of the terminal.
- *OEM Version* indicates the build version of the operating system.
- *IPL Version* identifies the build version of the system loader.

Unique Unit ID

Tap *Unique Unit ID* on the *Control Panel* to view the terminal's unique unit ID (a 16-byte hex number identifier), and the version numbers for RCM (Resource Coordinator Manager) API, Rescoord (Resource Coordinator) DLL, UUID DLL, and Temperature DLL.

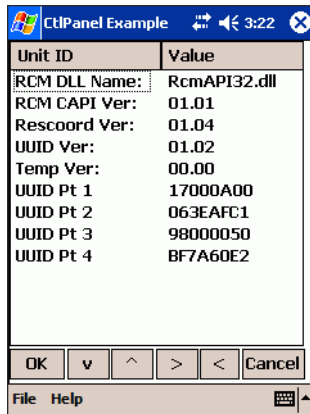
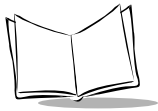


Figure B-8. Unique Unit ID Screen

Note: PDT 8800 terminals do not support the Temperature DLL.

Persist

Persist allows changes made by the *Control Panel* to remain in effect after a hard reset. When enabled, *Persist* creates .reg files which save specific settings that are made and restore the settings to the registry after a hard reset.



Toggle *Persist* to *Yes* to retain these changes made after a hard reset.

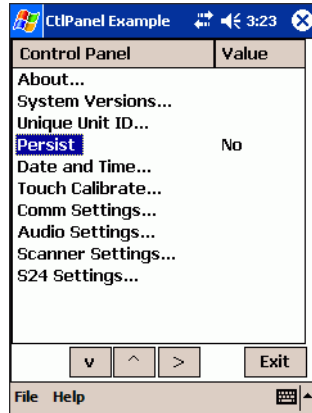


Figure B-9. Persist

Note: *Not all options support Permanent Persistence.*

Date and Time

Tap *Date and Time* on the *Control Panel* to change the date and time. The Date and Time window appears.

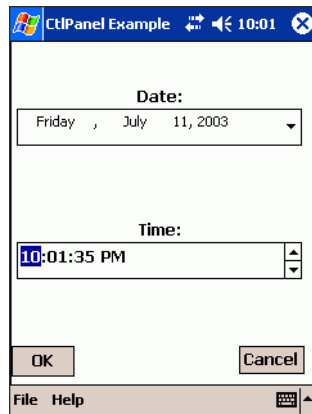


Figure B-10. Date and Time Window

To change the time, tap the *Time:* field and up the up and down arrows to change the value.

To change the date, tap the down arrow in the *Date:* field. A calendar box appears. Select the month and then select the day.

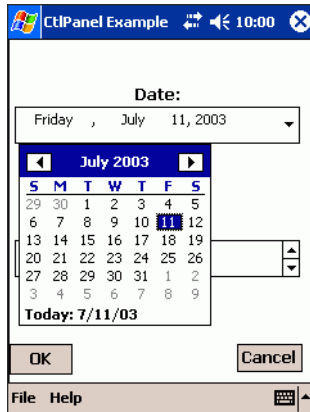


Figure B-11. Date Selection

Touch Calibrate

Select *Touch Calibrate* to re-align the screen.

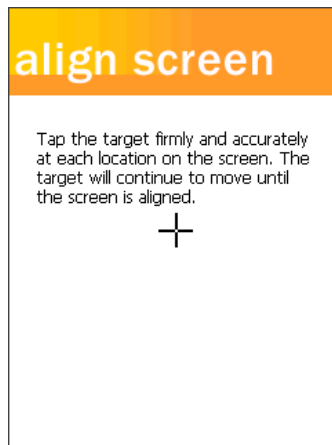
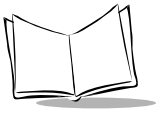


Figure B-12. Align Screen



Communication Settings

Select *Comm Settings* on the *Control Panel* to specify the settings to use when communicating with other devices.

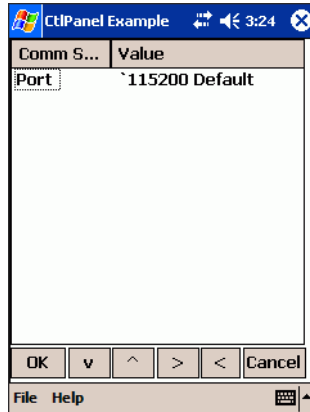


Figure B-13. Communication Settings Screen

Tap *Port* to select the appropriate communication settings to be used by ActiveSync. Scroll through the communication settings to select the appropriate value.

Audio Settings

Select *Audio Settings* on the Control Panel to specify the beeper volume and view the version numbers for the Audio and Notify APIs.

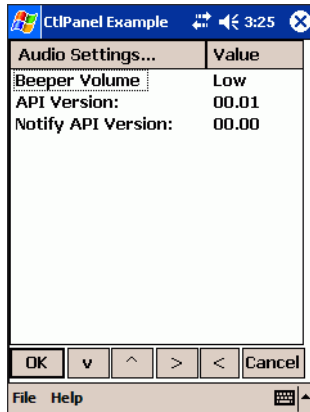
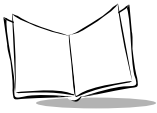


Figure B-14. Audio Settings Screen

- Tap *Beeper Volume* to toggle the beeper volume between low, medium, and high. As you change the value, the beeper sounds to demonstrate the level.
- *API Version* displays the version number of the Audio API.
- *Notify API Version* displays the version number of the Notify API.



Scanner Settings

Select *Scanner Settings* on the Control Panel to specify scanner-related parameters.

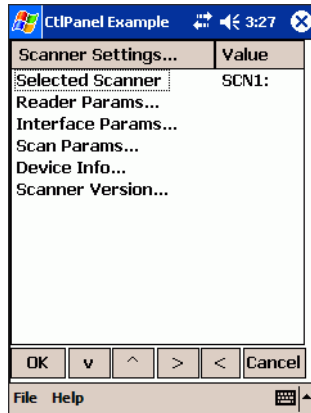


Figure B-15. Scanner Settings Screen

- *Selected Scanner* displays the value of the selected scanner.
- Tap *Reader Parameters* to view and modify the values of various reader parameters.
- Tap *Interface Parameters* to view and modify the values of the following interface parameters:
 - Interface Type
 - Enable Settle Time
 - Inverse Label
 - White Level
 - Clock Resolution
 - Power Settle Time.
- Tap *Scan Parameters* to view and modify the values of various scanner parameters.
- Tap *Device Info* to see the values of the following parameters:
 - Beam Width
 - Aim Mode
 - Scan Direction
 - Feedback

- Supported Fmts
- Max Image Rect.
- Tap *Scanner Version* to view the version numbers for the hardware, decoder, PPD, MDD, and API.

Refer to the Help file on the SDK for details on the available parameter options.

S24 Settings

Select *S24 Settings* on the Control Panel to specify S24-related parameters.

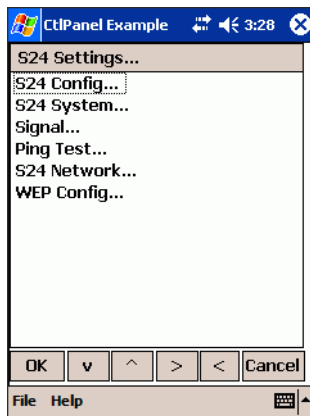
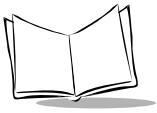


Figure B-16. S24 Settings Screen

- Tap *View Config* to view the current S24 settings.
- Tap *S24 System* to view and modify the system parameters.
- Tap *Signal* to view the signal strength in your current location.
- Tap *Ping Test* to view and modify settings for a ping test and perform a ping test.
- Tap *S24 Network* to view and modify the network parameters.
- Tap *S24 WEP Config* to view and modify the WEP configuration.



Scan Wedge

Scan Wedge allows bar code integration in applications. Tap the *Scan Wedge* icon to load. A *Scan Wedge* icon appears in the task tray.

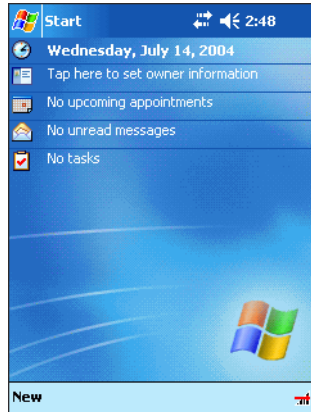


Figure B-17. Scan Wedge Icon

Tap the *Scan Wedge* icon to display a menu for setup and configuration of the demo.

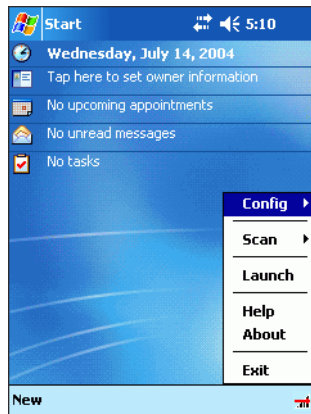


Figure B-18. Scan Wedge Menu

To scan bar codes in an application such as Pocket Word:

1. Tap *Start - PPT 8800 Demo - Scan Wedge* icon.

2. Tap *Start - Programs - Word* icon.
3. Tap *New* to open a new document.
4. Scan a bar code. The data appears in the Word document.

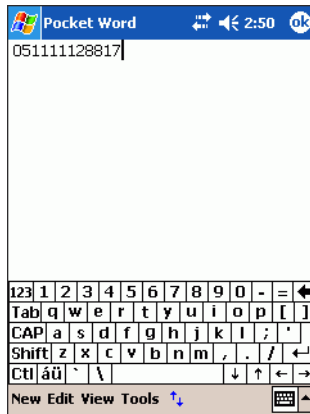


Figure B-19. Scan Data in Pocket Word

Print

The Print application illustrates how an application should handle print outputs.

1. Tap *Start - PPT 8800 Demo - Print* icon. The *Win32PrintSamp* window appears.

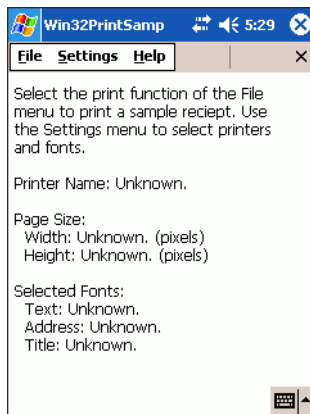


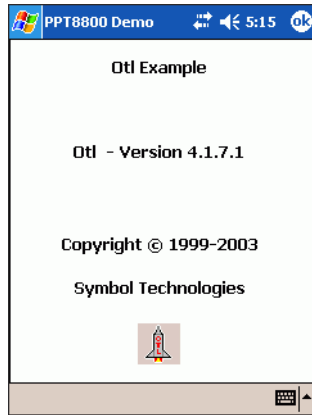
Figure B-20. Win32PrintSamp Window



2. Tap *Settings - Printer* to select a print.
3. Select a printer name and then tap the **OK** button.
4. Tap *Settings - Font* to select a font.
5. Tap *File - Print* to print a sample to the printer.

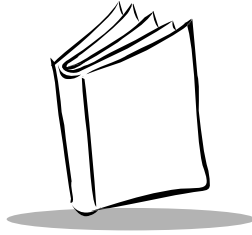
About

Select the *About* icon on the *PPT 8800 Demo* window to view information about the demo program.



Exit

Select the *Exit* button to exit the demo program.



Appendix C

Technical Specifications

Environment

The following table summarizes the terminal's intended operating environment.

Table C-1. Technical Specifications

Operating Temperature	14° to 122° F (-10° to +50° C)
Storage Temperature	-13° to 158° F (-25° to 70° C)
Battery Charging Temperature	0° C to +40° C (+32° F to +104° F) Note: To charge the battery for the mobile device, battery and charger temperature must be between +32° F and +104° F (0° C and +40° C).
Humidity	5% to 90% non-condensing
Electrostatic Discharge (ESD)	+/-15 kVDC (air); +/- 8 kVDC (contact)
Drop to Concrete	4 feet (1.2 meters)
Sealing	IP54 (dust category 2)
Dimensions	1.28 in. H x 3.22 in. W x 5.75 in. L (32.4 mm H x 81.8 mm W x 146 mm L)
Weight (including battery)	PPT 8800 with battery: 10.4 oz. (295 grams) PPT 8846 with battery: 11.1 oz. (315 grams) PPT 8860 with battery: 10.8 oz. (305 grams) PPT 8866 with battery: 10.9 oz. (309 grams)

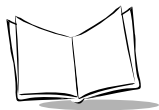


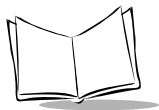
Table C-1. Technical Specifications (Continued)

Display	Transflective color TFT-LCD, 65K colors, 240 (W) x 320 (L) (QVGA size)
Touch Panel	Glass analog resistive touch
Main Battery Standard:	Rechargeable Lithium-Ion 1700 mAh minimum (3.7V) Optional: Larger capacity rechargeable Lithium-Ion 3400 mAh minimum (3.7V)
Backup Battery	Ni-MH battery (rechargeable), 15mAh (2.4V) 2 cells
CPU	Intel® XScale™ PXA255
Operating Platform	Microsoft® Windows® Mobile 2003 Software for Pocket PCs
Memory	64 MB RAM/ 64 MB ROM
Interface	RS-232, max. 115.2 kbps min. 1200bps, USB Client
CF Card Slot	Type II (not user accessible) Options: 802.11b radio (PPT 8846 and 8866) Bluetooth radio (PPT 8860)
Keypad Options	Standard backlit 6-key and 15-key versions with power button.
1D Decode Capability	UPC/EAN/JAN, Code 39, Code 93, Code 128, Interleaved 2 of 5, Discrete 2 of 5, Codabar (NW-7), UCC/EAN-128, RSS variants, RSS Linear variants.

COM Port Definitions

Table C-2. PPT 8800 COM Port Definitions

COM Port	Definition
COM1	Serial/Cradle
COM2	USB
COM3	IRComm PPT 8866 Only: BTCOMM
COM4	Raw IrDA
COM5	Available PPT 8866 Only: IRComm
COM6	Scanner
COM7	VCOM Ext Power
COM8	Available
COM9	Available



Pin-Outs

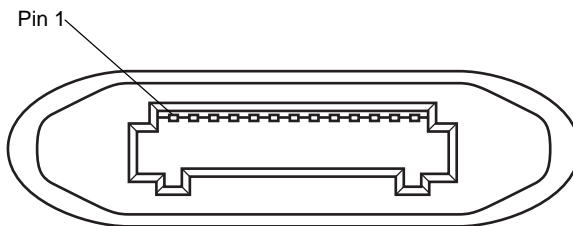
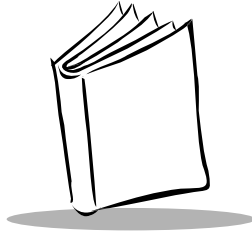


Figure C-1. ActiveSync Port (COM1)

Table C-3. PPT 8800 ActiveSync Port (COM1) Pin-Outs

Pin	Description
1	ext ± 5 volts
2	DSR
3	RXD
4	RTS
5	TXD
6	CTS
7	DCD
8	RI
9	DTR
10	RS232_gnd
11	Power_GND
12	9 Volts_In
13	NC
14	NC



Appendix D Keypad Maps

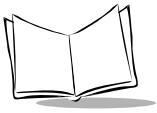
Introduction

This appendix contains the keypad map for the keypad configuration of the terminal. Each key is listed in the table with its value, depending on the state of the keypad.

As shown below, when the **I** key is pressed on the keypad, the default state displays the number '1'. After pressing the Shift key, the press of the '1' key acts as a Clear button.

Key	Default State	Shift State	VK Code (Decimal)	ASCII Value (Decimal)
I	1		49	49
		Clear	46	

In addition to key values, VK codes and ASCII values are listed for each key, where applicable.



Keypads

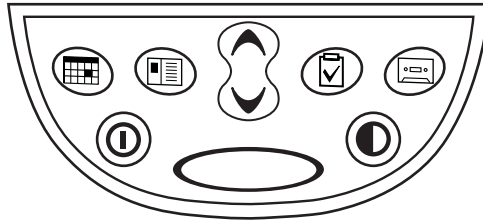


Figure D-1. Standard 6-Key Keypad

Table D-1. Standard 6-Key Keypad Functionality








Key	Default State	Shift State	Func State	VK Code (Decimal)	ASCII Value (Decimal)
	Calendar			9	9
			-	-	-
	Contacts			37	-
			Software Keyboard	-	-
	Tasks			39	-
			-	-	-
	Notes			27	27
			Calibrate	-	-
	UP			38	-
			Lighten screen	-	-
	DOWN			40	-
			Darken screen	-	-

Table D-1. Standard 6-Key Keypad Functionality (Continued)

Key	Default State	Shift State	Func State	VK Code (Decimal)	ASCII Value (Decimal)
	ENTER			13	13
				-	-

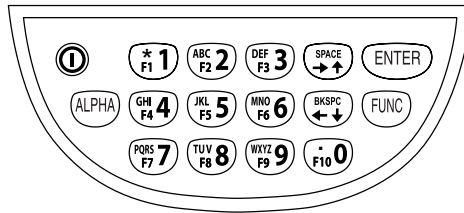
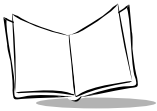




Figure D-2. 15-Key Keypad

Table D-2. 15-Key Keypad Functionality

Key	Default State	Alpha State	Alpha CAPS State	Shift State	Func State	VK Code (Decimal)	ASCII Value (Decimal)
	1					49	49
		@				16+50	64
		-				189	45
		_				16+189	95
		/				191	47
			:			16+186	58
			?			16+191	63
			!			16+49	33
			,			188	44
					F1	112	-
* F6, F7, F8, F9 and F10 VK codes are generated when no function is defined on each key at Control Panel.							

Table D-2. 15-Key Keypad Functionality (Continued)

Key	Default State	Alpha State	Alpha CAPS State	Shift State	Func State	VK Code (Decimal)	ASCII Value (Decimal)
	2					50	50
		a				65	97
		b				66	98
		c				67	99
			A			65	65
			B			66	66
			C			67	67
					F2	113	-
	3					51	51
		d				68	100
		e				69	101
		f				70	102
			D			68	68
			E			69	69
			F			70	70
					F3	114	-
* F6, F7, F8, F9 and F10 VK codes are generated when no function is defined on each key at Control Panel.							

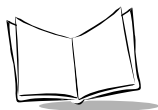




Table D-2. 15-Key Keypad Functionality (Continued)

Key	Default State	Alpha State	Alpha CAPS State	Shift State	Func State	VK Code (Decimal)	ASCII Value (Decimal)
	4					52	52
		d				71	103
		e				72	104
		f				73	105
			D			71	71
			E			72	72
			F			73	73
					F3	115	-
	5					53	53
		j				74	106
		k				75	107
		l				76	108
			J			74	74
			K			75	75
			L			76	76
					F5	116	-
* F6, F7, F8, F9 and F10 VK codes are generated when no function is defined on each key at Control Panel.							

Table D-2. 15-Key Keypad Functionality (Continued)

Key	Default State	Alpha State	Alpha CAPS State	Shift State	Func State	VK Code (Decimal)	ASCII Value (Decimal)
	6					54	54
		m				77	109
		n				78	110
		o				79	111
			M			77	77
			N			78	78
			O			79	79
					calibrate		-
					*F6	117	-
	7					55	55
		p				80	112
		q				81	113
		r				82	114
		s				83	115
			P			80	80
			Q			81	81
			R			82	82
			S			83	83
					Darken screen		-
					*F7	118	-
* F6, F7, F8, F9 and F10 VK codes are generated when no function is defined on each key at Control Panel.							

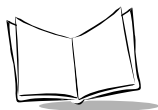






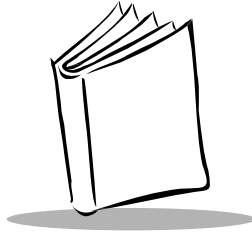
Table D-2. 15-Key Keypad Functionality (Continued)

Key	Default State	Alpha State	Alpha CAPS State	Shift State	Func State	VK Code (Decimal)	ASCII Value (Decimal)
	8					56	56
		t				84	116
		u				85	117
		v				86	118
			T			84	84
			U			85	85
			V			86	86
					Lighten screen		
					*F8	119	-
	9					57	57
		w				87	119
		x				88	120
		y				89	121
		z				90	122
			W			87	87
			X			88	88
			Y			89	89
			Z			90	90
					ESCAPE	27	27
					*F9	120	-
* F6, F7, F8, F9 and F10 VK codes are generated when no function is defined on each key at Control Panel.							

Table D-2. 15-Key Keypad Functionality (Continued)

Key	Default State	Alpha State	Alpha CAPS State	Shift State	Func State	VK Code (Decimal)	ASCII Value (Decimal)
	0					48	48
		.				190	46
			.			190	46
					TAB	9	9
					*F10	121	-
	UP					38	-
		SPACE				32	32
			SPACE			32	32
					RIGHT	39	-
	DOWN					40	-
		BK SPC				8	8
			BK SPC			8	8
					LEFT	37	-
	ENTER					13	13
		ENTER				13	13
			ENTER			13	13
* F6, F7, F8, F9 and F10 VK codes are generated when no function is defined on each key at Control Panel.							





Appendix E

Bluetooth Regulatory Information

FHSS Descriptions

1. Output Power and Channel Separation of a Bluetooth Device in the Different Operating Modes

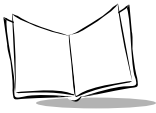
The different operating modes (data-mode, acquisition-mode) of a Bluetooth device don't influence the output power and the channel spacing. There is only one transmitter, which is driven by identical input parameters concerning these two parameters. Only a different hopping sequence will be used. For this reason, the RF parameters in one op-mode are sufficient.

2. Frequency Range of a Bluetooth Device

The maximum frequency of the device is 2402MHz - 2480 MHz. This is according the Bluetooth Core Specification V 1.1.

3. Co-Ordination of the Hopping Sequence in Data Mode to Avoid Simultaneous Occupancy by Multiple Transmitters

Bluetooth units, which want to communicate with other units, must be organized in a structure called piconet. This piconet consist of maximum 8 Bluetooth units. One unit is the master the other seven are the slaves. The master co-ordinates frequency occupation in this piconet for all units. As the master hop sequence is derived from it's BD address which is unique for every Bluetooth device, additional masters intending to establish new piconets will always use different hop sequences.



4. Example of a Hopping Sequence in Data Mode: Example of a 79 hopping sequence in data mode:

40, 21, 44, 23, 42, 53, 46, 55, 48, 33, 52, 35, 50, 65, 54, 67, 56, 37, 60, 39, 58, 69, 62, 71, 64, 25, 68, 27, 66, 57, 70, 59, 72, 29, 76, 31, 74, 61, 78, 63, 01, 41, 05, 43, 03, 73, 07, 75, 09, 45, 13, 47, 11, 77, 15, 00, 64, 49, 66, 53, 68, 02, 70, 06, 01, 51, 03, 55, 05, 04

5. Equally Average Use of Frequencies in Data Mode and Short Transmissions

The generation of the hopping sequence in connection mode depends essentially on two input values:

1. LAP/UAP of the master of the connection
2. Internal master clock.

The LAP (lower address part) is the 24 LSB's of the 48 BD-ADDRESS. The BD ADDRESS is an unambiguous number of every Bluetooth unit. The UAP (upper address part) are the 24 MSB's of the 48 BD-ADDRESS. The internal clock of a Bluetooth unit is derived from a free running clock, which is never adjusted and is never turned off. For synchronization with other units, only the offsets are used. It has no relation to the time of the day. Its resolution is at least half the RX/TX slot length of 312.5µs. The clock has a cycle of about one day (23h30). In most case it is implemented as a 28-bit counter. For the deriving of the hopping sequence the entire LAP (24 bits), 4 LSB's (4 bits) (Input 1) and the 27 MSB's of the clock (Input 2) are used. With this input values different mathematical procedures (permutations, additions, XOR-operations) are performed to generate the sequence. This will be done at the beginning of every new transmission.

Regarding short transmissions, the Bluetooth system has the following behavior:

The first connection between the two devices is established, a hopping sequence is generated. For transmitting the wanted data, the complete hopping sequence is not used and the connection ends. The second connection will be established. A new hopping sequence is generated. Due to the fact that the Bluetooth clock has a different value, because the period between the two transmission is longer (and it cannot be shorter) than the minimum resolution of the clock (312.5 ms). The hopping sequence will always differ from the first one.

6. Receiver Input Bandwidth, Synchronization and Repeated Single or Multiple Packets

The input bandwidth of the receiver is 1 MHz. In every connection, one Bluetooth device is the master and the other one is the slave. The master determines the hopping sequence (see section 5). The slave follows this sequence. Both devices shift between RX and TX

time slot according to the clock of the master. Additionally the type of connection (e.g. single or multi-slot packet) is set up at the beginning of the connection. The master adapts its hopping frequency and its TX/RX timing is according to the packet type of the connection. Also, the slave of the connection uses these settings. Repeating of a packet has no influence on the hopping sequence. The hopping sequence generated by the master of the connection will be followed in any case. That means, a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence.

7. Dwell Time in Data Mode

The dwell time of 0.3797s within a 30 seconds period in data mode is independent from the packet type (packet length). The calculation for a 30 seconds period is as follows:

$$\text{Dwell time} = \text{time slot length} * \text{hop rate} / \text{number of hopping channels} * 30\text{s}$$

Example for a DH1 packet (with a maximum length of one time slot) Dwell time = $625 \text{ IJs} * 1600 \text{ 1/s} / 79 * 30\text{s} = 0.3797\text{s}$ (in a 30s period)

For multi-slot packet the hopping is reduced according to the length of the packet.

Example for a DH5 packet (with a maximum length of five time slots)

$$\text{Dwell time} = 5 * 625 \text{ ms} * 1600 * 1/5 * 1/\text{s} / 79 * 30\text{s} = 0.3797\text{s} \text{ (in a 30s period)}$$

This is according the Bluetooth Core Specification V 1.1 for all Bluetooth devices. Therefore, all Bluetooth devices comply with the FCC dwell time requirement in the data mode. This was checked during the Bluetooth Qualification tests. The Dwell time in hybrid mode is approximately 2.6ms (in a 12.8s period).

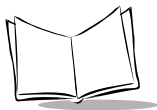
8. Channel Separation in Hybrid Mode

The nominal channel spacing of the Bluetooth system is 1 MHz independent of the operating mode. The maximum “initial carrier frequency tolerance” which is allowed for Bluetooth is $f_{\text{center}} = 75 \text{ kHz}$.

This was checked during the Bluetooth Qualification tests (Test Case: TRM/CA/07-E) for three frequencies (2402MHz, 2441MHz, 2480 MHz).

9. Derivation and Examples for a Hopping Sequence in Hybrid Mode

For the generation of the inquiry and page hop sequences the same procedures as described for the data mode are used (see section 5), but this time with different input vectors:



- For the inquiry hop sequence, a predefined fixed address is always used. This results in the same 32 frequencies used by all devices doing an inquiry but every time with a different start frequency and phase in this sequence.
- For the page hop sequence, the device address of the paged unit is used as the input vector. This results in the use of a subset of 32 frequencies, which is specific for that initial state of the connection establishment between the two units. A page to different devices would result in a different subset of 32 frequencies.

So it is ensured that also in hybrid mode, the frequency is used equally on average.

Example of a hopping sequence in inquiry mode:

48, 50, 09, 13, 52, 54, 41, 45, 56, 58, 11, 15, 60, 62, 43, 47, 00, 02, 64, 68, 04, 06, 17, 21, 08, 10, 66, 70, 12, 14, 19, 23

Example of a hopping sequence in paging mode:

08, 57, 68, 70, 51, 02, 42, 40, 04, 61, 44, 46, 63, 14, 50, 48, 16, 65, 52, 54, 67, 18, 58, 56, 20, 53, 60, 62, 55, 06, 66, 64

10. Receiver Input Bandwidth and Synchronization in Hybrid Mode

The receiver input bandwidth is the same as in the data mode (1 MHz). When two Bluetooth devices establish contact for the first time, one device sends an inquiry access code and the other device is scanning for this inquiry access code. If two devices have been connected previously and want to start a new transmission, a similar procedure takes place. The only difference is, instead of the inquiry access code, a special access code, derived from the BD-ADDRESS of the paged device will be, will be sent by the master of this connection. Due to the fact that both units have been connected before (in the inquiry procedure) the paging unit has timing and frequency information about the page scan of the paged unit. For this reason the time to establish the connection is reduced.

11. Spread Rate / Data Rate of the Direct Sequence Signal

The spread rate / data rate in inquiry and paging mode can be defined via the access code. The access code is the only criterion for the system to check if there is a valid transmission or not. If you regard the presence of a valid access code as one bit of information, and compare it with the length of the access code of 68 bits, the spread rate / data rate will be 68/1.

12. Spurious Emission in Hybrid Mode

The dwell in hybrid mode is shorter than in data mode. For this reason the spurious emissions average level in data mode is worst case. The spurious emissions peak level is the same for both modes.

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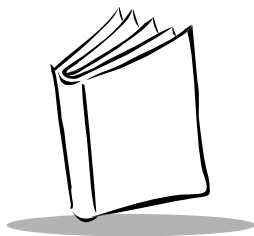
☐ Very familiar ☐ Slightly familiar ☐ Not at all familiar

Did this manual meet your needs? If not, please explain.

What topics need to be added to the index, if applicable?

What topics do you feel need to be better discussed? Please be specific.

What can we do to further improve our manuals?



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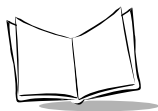
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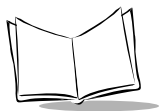
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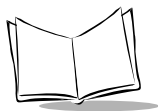
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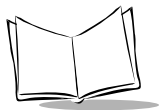
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